DECEMBER | 1955

products finishing

FINISHES ON METAL PRODUCTS

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LEA LIQUABRADE

for HIGH SPEED—LOW COST AUTOMATIC finishing of stainless steel

Close up of Lea-Engineered Spray Buffing System using Lea Liquabrade on side buffing

at CASCO

These gay new Casco Steam and Dry Irons are gleaming, durable, stainless steel . . . inside and out. Uses plain tap water even in hard water areas. And, to get this gleaming finish on the stainless steel case, CASCO uses LEA LIQUABRADE with the Lea-Engineered Spray Buffing System.

Yes, sir . . . and CASCO uses LEA LIQUABRADE on a big straight line automatic buffing machine that really does a job. From rough draw to high lustre in a continuous high speed, low cost, automatic operation.

For real finishing line flexibility you can't beat the Lea Spray Buffing Package Plan — Lea Liquabrade and Lea-Engineered Spray Buffing Equipment. May we help you put your finishing line on a PAY-LESS-AS-YOU-GO basis?

Burring, Buffing, Polishing, Lapping, Plating and Spray Finishing . . . Manufacturers and Specialists in the Development of Production Methods, Equipment and Compositions.

Manufacturers of Lea Compound and Learok . . . Industry's quality buffing and polishing compounds for over 30 years.

THE LEA MANUFACTURING CO.
16 CHERRY AVE., WATERBURY 20, CONN

Lea-Michigan, Inc., 14066 Stansbury Ave., Detroit 27, Mich.
Lea Mfg. Company of Canada, Ltd., 378 Victoria St., Toronto 2, Canada
Lea-Ronal, Inc., Main Off. & Laboratory: 139-20 109th Ave., Jamaica 35, N.Y.
Manufacturing Plant: 237 East Aurora St., Waterbury 20, Conn.

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3	16	29	42	55	68	81	94
4	17	30	43	56	69	82	95
5	18	31	44	57	70	83	96
6	19	32	45	58	71	84	97
7	20	33	46	59	72	85	98
8	21	34	47	60	73	86	99
9	22	35	48	61	74	87	100
10	23	36	49	62	75	88	101
11	24	37	50	63	76	89	102
12	25	38	51	64	77	90	103
13	26	39	52	65	78	91	104

ADVERTISEMENTS

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105	118	131	144	157	170	183	196	209	222	235
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NAME _____ POSITION _____

COMPANY _____

STREET _____

CITY _____ ZONE ____ STATE _____

Your Monthly Source For Finishing Ideas

PRODUCTS FINISHING — DECEMBER, 1955

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7	20	33	46	59	72	85	98
8	21	34	47	60	73	86	99
9	22	35	48	61	74	87	100
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117	130	143	156	169	182	195	208	221	234	247

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FIRST CLASS
PERMIT No. 7414
NEW YORK, N. Y.

BUSINESS REPLY CARD
No Postage Stamp Necessary If Mailed in the United States

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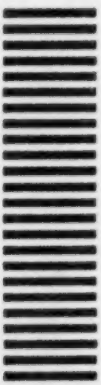

CITY _____ ZONE _____ STATE _____

WHAT'S THE BEST WAY TO STRIP METAL PARTS IN LARGE VOLUME?
See page 9

Are you looking for better methods for stripping paint?

Do some finishes resist your present stripping methods? Do rejects pile up and cause a bottleneck in your production line? Do you have trouble stripping vertical surfaces of large products?

Oakite's FREE booklet on "How to STRIP PAINT" will help you find more efficient procedures. You'll want to read more about:

¶ What's the best way to strip paint from metal parts too large to be soaked in tanks? ***See page 3.***

¶ What's the best way to strip large areas of structural metal where a steam supply is available? ***See page 5.*** Where steam is not available? ***See page 7.***

¶ What are the best ways to prepare stripped metal for repainting? ***See page 11.***

¶ What strippers are best for removing oil-base paints? . . . Synthetic enamels, alkali-resistant plastics or resin-based paints? . . . Japans, wrinkle finishes, nitrocellulose lacquers, alkyds, phenolics and ureas? ***See page 12.***

FREE For your copy of "How to STRIP PAINT" just write or mail the coupon.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS · METHODS · SERVICE

OAKITE PRODUCTS, INC.
20 Rector St., New York 6, N. Y.

Send me a FREE copy of "How to STRIP PAINT"

Name _____

Company _____

Address _____

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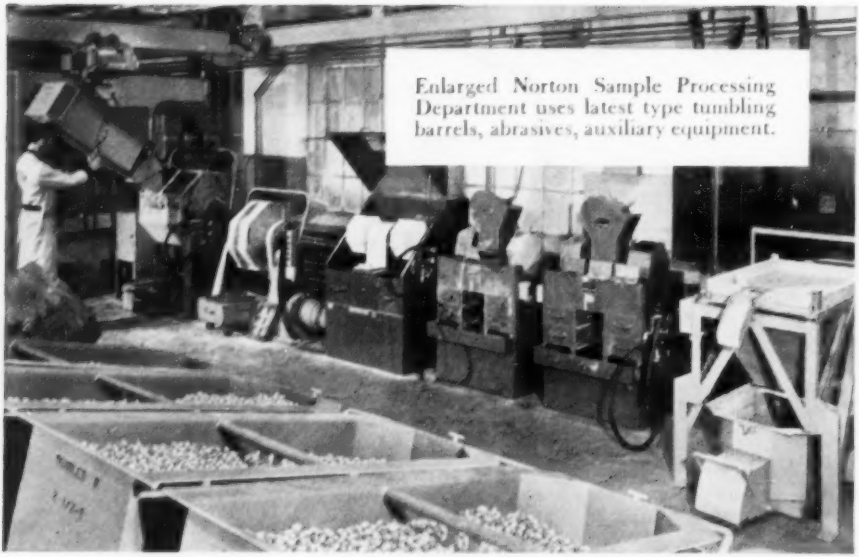

Enlarged Norton Sample Processing Department uses latest type tumbling barrels, abrasives, auxiliary equipment.

See what barrel-finishing can do

If you're still finishing metal parts the long hard way — take a look at what Norton is demonstrating with modern equipment, materials and processes in its newly enlarged Sample Processing Department.

Deburring . . . descaling . . . better color . . . better finish . . . lighter cuts on die castings without cutting under the smooth outside surface — what's your problem?

If you will send us sample parts (and they can range from tiny needles to hefty forgings) Norton production engineers will give you a detailed report on what tumbling will do for you.

What To Send Us

Along with your unfinished parts please forward: (a) a finished sample to be matched (hand-finished if necessary); plus (b) information on your present barrel finishing equipment, if any, including type and size of barrel and speeds. Address the Sales Engineering Dept., Abrasive Division. NORTON COMPANY, Worcester 6, Mass.

G-301

NORTON

ABRASIVES

Making better products . . .
to make your products better

NORTON COMPANY: Abrasives • Grinding Wheels • Grinding Machines • Refractories
BEHR-MANNING DIVISION: Coated Abrasives Sharpening Stones • Pressure-Sensitive Tapes

For more data circle 106 on Reader Service Card

ALWAYS FINISHES FIRST

and cuts costs two ways because it's completely automatic!

fast cutting, easy cleaning with

Liquimatic®

the perfect liquid compound for all metal finishing

What are the two big cost factors in your buffing room? Chances are *buff life* figures big when you're talking production costs . . . and the second big factor is *production time* itself. Liquimatic Application Systems are licking these two cost problems in buffing rooms all over the U. S.—because Liquimatic is automatic. An electrically timed system feeds Liquimatic Buffing Compound to the buff in the exact amount to give you the exact cut you need. Because the buff is continually lubricated, buff life is extended up to 400%!

And with Liquimatic there's no compound wasted, no gubbin problem, no hand application, no changing bars—think of the cost savings you can effect in *your* buffing room with these advantages! Savings in buff life alone can soon pay for a complete Liquimatic Application System . . . a system that will continue to save you money—*automatically*.

Check the other features of Liquimatic Buffing Compound . . . then write today for your free copy of Liquimatic's big, new folder that tells the whole cost-saving story of Liquimatic in *your* buffing room.

These additional Liquimatic features mean real savings in terms of time, money, safety—

- longer buff life
- completely automatic
- fast cutting
- easy cleaning
- non-settling
- high flash point
- long storage life
- sprayable viscosity
- adhesive slow-wearing buff face

Liquimatic . . . gives more buff mileage

PLATEMASTER

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

HANSON-VAN WINKLE-MUNNING COMPANY

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H-VW-M

INDUSTRY'S WORKSHOP FOR THE FINEST IN PLATING AND POLISHING PROCESSES • EQUIPMENT • SUPPLIES

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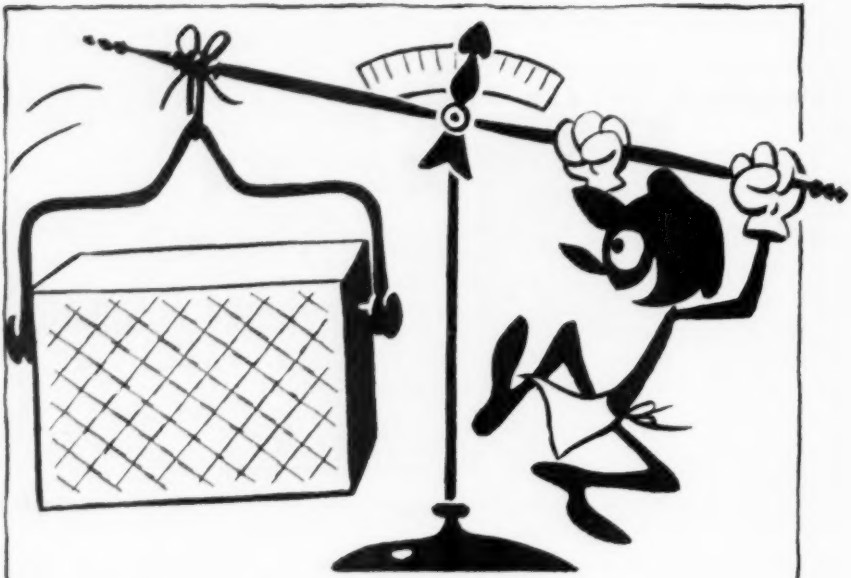

Pickling Pete Sure as fate Picks Monel For lighter weight

What makes Monel lighter? High strength (thin sections handle big loads) plus Monel's acid resistance (less corrosion allowance). Easy-to-repair Monel gives long life, too. Free booklet, "5-Way Savings in Pickling," is worth writing for today.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

INCO TRADE MARK **Monel** Pickling Equipment

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products finishing

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BPA
NBP

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contents

Clean spray booths in a *FLASH* with BOOTHGUARD

SPRAY IT ON—in minutes
STRIP IT OFF—overspray goes with it

Only BOOTHGUARD
WATER-TYPE Coating is . . .

NON-INFLAMMABLE IN STORAGE!
Just as fire safe in its liquid state as it is when dry! No insurance risk — no special storage areas needed.

COVERS COMPLETELY WITH ONLY 1 COAT!
Costs less . . . and you use less. There is no feathering or webbing — less waste. One coat covers entire booth, dries fast and clings tight until you remove it.

STRONGEST COATING MADE!
BOOTHGUARD'S tough, elastic coating will not tear or shred when stripped. Pull it off — all at once.

WHITEST COATING!
BOOTHGUARD gives greater reflection, better visibility — and you use less. You'll have fewer rejects with BOOTHGUARD coating your booths.

See for yourself what BOOTHGUARD and METALGUARD can do for you.

SPECIAL INTRODUCTORY OFFER — 10% OFF 5 GALLON PRICE!

Distributors! Some territories still available!
SEND FOR FURTHER INFORMATION

GUARD
COATINGS CORPORATION
Manufacturers of a complete line of temporary protective coatings for metals, glass and enamel.
8-05 43rd AVE., LONG ISLAND CITY, N. Y.
EXeter 2-5317

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products finishing

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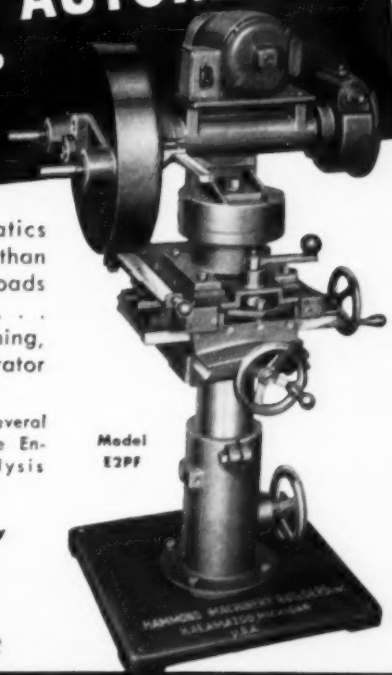
products finishing
431 Main St. Cincinnati 2, Ohio

LOWER COST FINISHING

WITH

Hammond JUNIOR AUTOMATIC

POLISHING AND BUFFING MACHINES



Model E2PF

Users of Hammond Junior Automatics report 3 to 7 times faster finishing than hand methods. The Operator merely loads and unloads the machine, result . . . . faster, better and more uniform finishing, more pieces per hour with less operator fatigue.

SEND SAMPLES: Send us one finished and several rough samples. You will receive a complete Engineering Report and Production Analysis without obligation.

Hammond
of KALAMAZOO
Good Machinery Since '82

Hammond Machinery Builders INC

1622 DOUGLAS AVENUE ★ KALAMAZOO, MICHIGAN, U. S. A.

For more data circle 110 on Reader Service Card

SEYMOUR

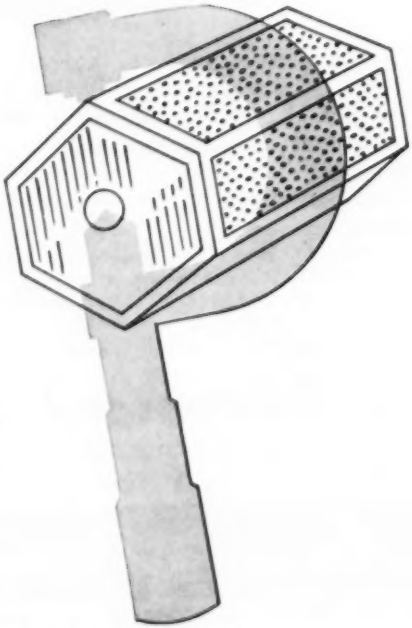
BRIGHT NICKEL

FOR PLATING TO SPECIFIC THICKNESSES

Seymour "NC" and "CK" Bright Nickel processes in a warm plating bath permits specification barrel nickel plating to any desired deposit from .0002" to .0010" at speeds four to six times faster than a cold solution.

Seymour Barrel Nickel Brightener solutions are also available for cold plating baths where decorative deposits of about .0001" maximum are required.

Simple to maintain and easy to control, Seymour brighteners permit chromium plating without prior buffing or wiping.



THE SEYMOUR MANUFACTURING CO.
SEYMOUR, CONN.

Nonferrous Alloys Since 1878

For more data circle 111 on Reader Service Card

Finishing Problem?...

Experience

Watson-Standard's EXPERIENCE IN FORMULATING SPECIALIZED COATINGS IS INVALUABLE TO METAL FINISHERS

If your product includes metal finishing in its manufacture, it is wise to consult the Watson-Standard Laboratories on your coating problems. The services of our laboratory and field technicians are available without obligation.

"Knowledge, skill and technique through Experience"

Watson-Standard Co.

225 Galveston Ave., Pittsburgh 30, Pa.

NEW YORK OFFICE: 15 Park Row, New York 38, N. Y.
CHICAGO OFFICE: 55 E. Washington Street, Chicago 2, Ill.

INDUSTRIAL FINISHES • PAINTS • PLASTICS • CHEMICALS

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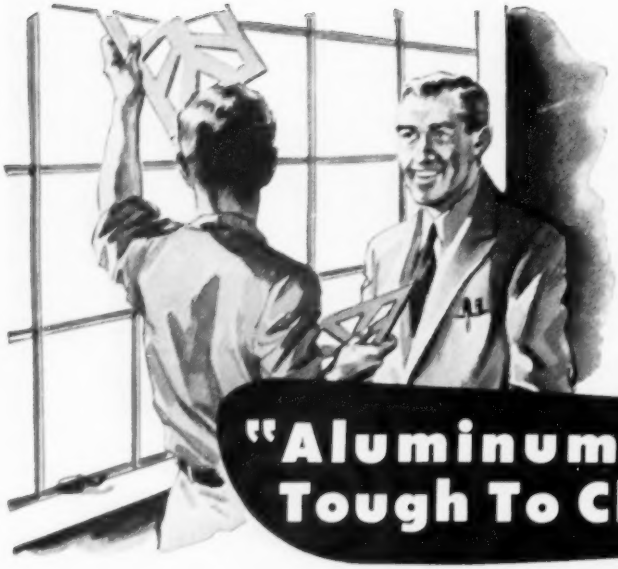


"Aluminum WAS Tough To Clean...

....before Northwest developed Acid Solvent Emulsion Cleaner #1."

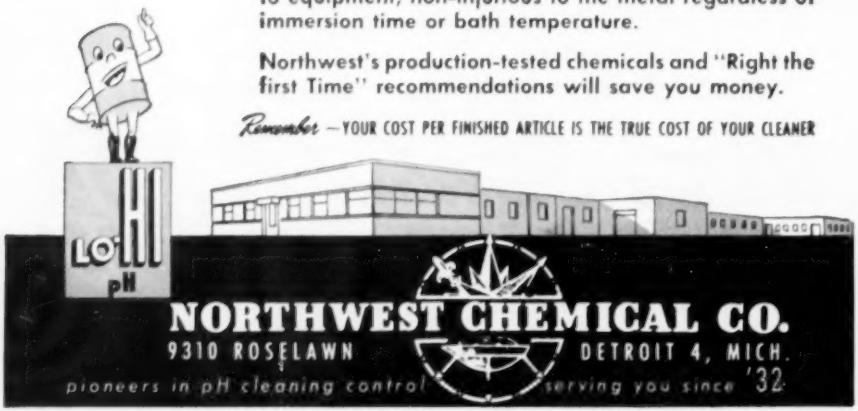
Got a Problem? Let our "Cleaning Specialists" help you!

Northwest's Acid Solvent Emulsion Cleaner No. 1 completely and quickly removes soil from aluminum parts, preparing the surface for plating, painting, anodizing, zinc chromate priming or other finishes.

It is fast cleaning, easily rinsed and controlled, readily-emulsified, and economical. Non-toxic, non-corrosive to equipment; non-injurious to the metal regardless of immersion time or bath temperature.

Northwest's production-tested chemicals and "Right the first Time" recommendations will save you money.

Remember —YOUR COST PER FINISHED ARTICLE IS THE TRUE COST OF YOUR CLEANER



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Chrome Plate over 3200 Pieces Per Hour with One Operator!

LASALCO's *New* CIRCULAR CHROME PLATER

Cost-cutter . . . time-saver . . .
production-booster! Consider the unusual extra profit possibilities with this new high current density, continuously-moving cathode chrome plater:

- Exceptionally high output—3290 pieces, up to 3" long, per hour at 23 seconds. Minimum output, 530 pieces per hour at 2.39 minutes. (Alternate slower drives for heavier plating.)
- One-man loading . . . fully automatic unloading.
- No racks . . . no rack upkeep.
- Easily removable sectionalized cover of Plexiglas, plus easy-to-raise driving mechanism and cathode wheel, gives quick access to coils and anodes. Parts falling into tank are instantly recoverable.
- Simple installation requires only electrical connections and exhaust duct. Plater delivered complete, ready to install.

Write Now . . . Get The Facts About This Money-Maker

SPECIFICATIONS

Cathode Wheel Diameters 28", 38"
Bronze Work Carriers 3.24" O.C.
Effective Plating Travel 68.4".
Inner Anode Diameter 24"; Outer Anode 40".
Center Of Anode To Cathode 6".
Tank Diameter 54"; Depth 14".
3/32" Koroseal Lining.
Solution Capacity 115 Gals. 2" From Top.
Anodes: Flat 16 lb. 6% Antimonial Lead—Outer ¼"x9"x7'3"; Inner ¼"x9"x4'6". Anode and Cathode Taps ¼" x 2". Copper Bars.
Bused For 500 Amps.
Heating (Standard): ¼" I.D. 6% Antimonial Lead Steam Coil. (Available For Electric Heating.)
Drive: ½ HP 110/220 1- Phase 60 Cycle AC Motor. Variable Speed Reduction.

LASALCO, INC.

HOME OFFICE
2830 LaSalle St. • St. Louis 4, Mo.
PRospect 1-2990

IN TEXAS
501 West Eighth St. • Irving (Dallas), Tex.
Phone: 3-4921

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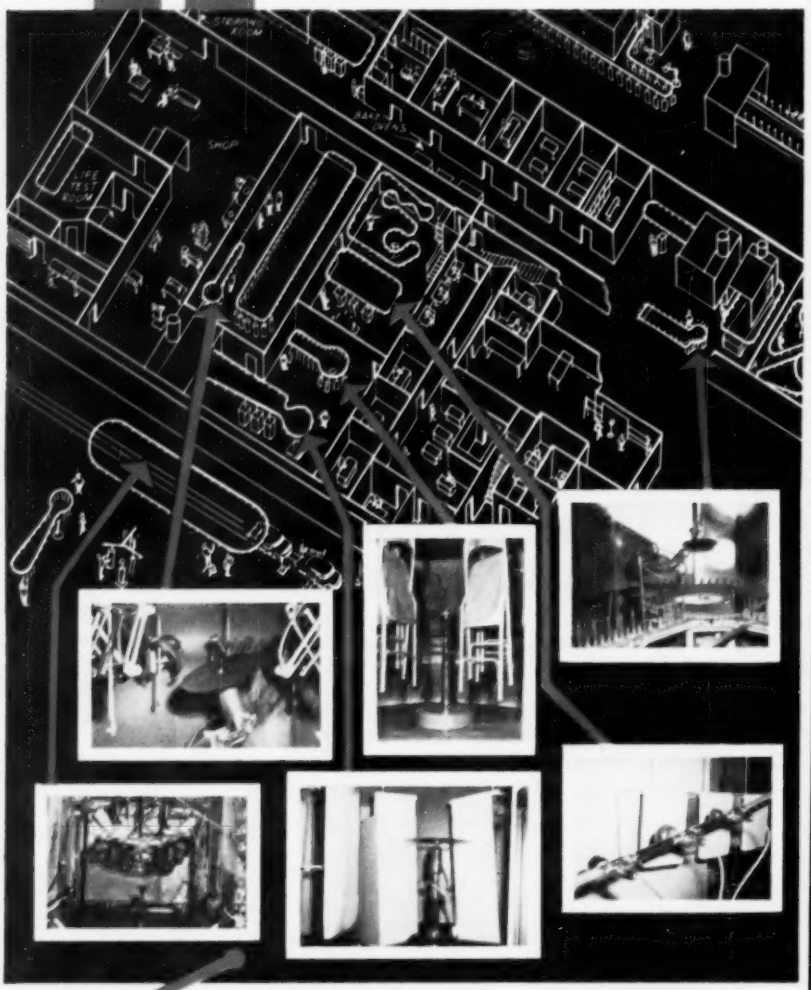
22 Laboratories at YOUR service



YOUR JOB, LIKE THESE SHOWN ABOVE, WILL BE TEST PROVEN

under simulated production conditions to determine cost-saving benefits and other advantages. Ransburg also maintains other test facilities in Los Angeles, London, England; Bad Horsfeld, Germany; Paris, France and Sydney, Australia.

For more data circle 114 on Reader Service Card

to prove the painting of YOUR products with

RANSBURG

Electrostatic Painting Processes

Let us make laboratory tests and prove the advantages and cost-saving benefits of painting YOUR products AUTOMATICALLY with one of the Ransburg Electro-Spray Processes.

GET THE FACTS . . . IT COSTS YOU NOTHING!

● **First,** Ransburg sales engineers will make a survey in your plant to check the possibilities of using Electrostatic Spray Painting on your products. Next, you will send samples of your unpainted products—with paint—to the Ransburg laboratories in Indianapolis.

Here, the technical staff takes over. The Ransburg Engineering staff—which includes PH.D's and Masters in Physics, Science, Electrical, Mechanical and Chemical Engineering—makes a complete study of your job. Not only do they have the necessary academic training, but they have the "know how" gained from years of actual experience in the field. Ransburg, you know, was the pioneer in Electrostatic Spray Painting 15 years ago. Engineers and well-qualified technicians have at their disposal every facility for conducting complete tests, simulating your own production conditions. They'll decide which type conveyor is best suited for your job. (There's a conveyorized lab set-up—22 in all—to handle products ranging in size from automobile bodies and chassis to small components, such as window hardware.) They'll design workholders, if necessary, and determine exactly how your job can be run to your best advantage. Details, such as fixture spacing, will be worked out too.

After preliminary studies and tests, you are invited to Indianapolis to see your job run in the lab. If you wish, photos and even movies of your test run can be made and furnished for your own production people to study. You see first-hand what Ransburg Electrostatic Spray Painting can do for you in your own plant.

YOU GET PAINT AND LABOR SAVINGS

Paint usage is accurately measured during the demonstration. The Ransburg No. 2 Process will provide savings up to five times the paint mileage of hand spray. And, one unit can do the work of many hand sprayers. You will see the improved, uniform quality of the work . . . you'll know what kind of increased production to expect, and you can recognize labor savings. ALL OF THIS WITHOUT OBLIGATION.

Ransburg service doesn't end there. After the equipment is installed in your plant—with our supervisory help—we will train your operator and continue to work with your finishing department. Our technically-trained field service engineers are always available to assist with any of your finishing problems.

Briefly, that's our story. Now it's your move. Call or write.

Dept. P

Ransburg
ELECTRO-COATING CORP.
Indianapolis 7, Indiana

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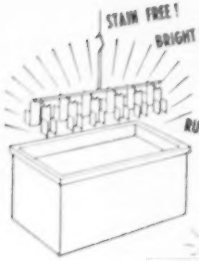
NEW!

Magic Dry

Your answer to *Trouble-Free* PLATING

by Eliminating { STAINING / DULLNESS / RUSTING



PLATING

MAGIC DRY is a remarkable new product that helps eliminate rejects and increases production. In plating, MAGIC DRY is used in the rinse cycle in concentration of 1-2 ozs. for every 10 gallons of water 160° to 180° F. MAGIC DRY will eliminate plating stains and maintain the bright finish of the plated work. It will also provide a *rustproofing* finish that will be welcomed by the plating industry.

TUMBLING

Four ozs. of MAGIC DRY per gallon of water applied to tumbled parts at room temperature immediately after tumbling retains the bright finish of the tumbled parts and thereby prevents them from rusting or staining.

CLEANING

When one oz. of MAGIC DRY is added to each gallon of Alkali cleaner, many difficult cleaning problems become a matter of routine.

MAGIC DRY is now available in 55 gallon drums or 5 gallon containers.

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FACTS YOU SHOULD KNOW ABOUT MAKING YOUR FINISH

UNIQUE WITH NACROMER

Nacromer makes an extraordinary finish out of your ordinary coating material.* Just the addition of a small amount of Nacromer makes a world of difference in the appearance. The range of effects with the use of transparent pigments or dyes is amazing.

Nacromer requires no additional labor or equipment. You use your present method of application – brush, spray or dip – simply add Nacromer (in paste form) to your present finishing material.

Nacromer can be used on practically every material. Nacromer can be added to the finishing materials used on wood, leather, metal, plastic, paper, and countless other materials. It is permanent and safe.

Nacromer is low in cost. Since the quantity added to obtain unusual beauty is so small and the cost of the Nacromer itself so low, the extra cost of the finished product is negligible.

Can you use Nacromer? Can your product benefit from a distinctive, different kind of finish? Use the handy coupon below to obtain a demonstration sample of a Nacromer finish on the type of material your product resembles. Mail it today.

* Nacromer is not suitable for use in pigmented enamels, high temperature bake-type synthetic resins containing formaldehyde, or paints. It is suitable for use over these coatings in a clear enamel or lacquer.

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feature should be called on less than its ability to protect the cleaned surface from contamination.

The zinc ammonium chloride corresponding to the formula $ZnCl_2$ reducing atmosphere. Such studies have led to a final shortening of the total time through the zinc kettle for many products, including continuous processes for wire and strip.

NEW LEVELUME PROCESS INTRODUCED BY H-VW-M

FIRST NICKEL PLATING PROCESS COMBINING FULL BRIGHTNESS WITH "TRULY AMAZING LEVELING" ANNOUNCED BY MATAWAN, N. J. FIRM.

Matawan, N. J.—Levelume, a new bright nickel process giving deposits combining "full brightness with truly amazing leveling," was released for general use today by Hanson-Van Winkle-Munning Company. Matawan, N. J., suppliers to the metal finishing industry. Officials of the company stated that the Levelume Process is a milestone—the first nickel process to combine qualities of brightness, high leveling and exceptional speed.

Years of research went into the development of the process, and the result, according to H-VW-M officials, is a process imparting "optimum qualities of brightness, leveling, surface activity, ductility and controlled stress at exceptionally high deposition rates."

The process has already been field tested in several high production automatic conveyors. One leading auto parts producer, it is reported, has increased production well over 100% without investing in new conveyors, enlarging tanks or changing racking methods.

Newly discovered addition agents are the key to the phenomenal success of Levelume. With the new process, plating is done at higher temperatures and higher current densities. Air agitation and continuous filtration through activated carbon prevent contamination build-up that normally leads to deterioration of the deposit's physical properties.

Replacing the muriatic acid flux wash water solution of zinc ammonium chloride found wide acceptance ago in all fields except some of

quality treatment. A special arrangement flow of current as Leads (D) are cont assembly during the the work reaches the place.

Modern requirements protective finishes on industrial products ex expanding need for au finishing machinery—lik Automatic Conveyor Sy ume metal finishing—at never before attained—i reality for almost every dustrial application.

Whether the operation the process complex or automatic conveyor sy cially designed to prov quantitative productio

Fully automatic systems—synchronize flow—automatically con untouched through an en cycle. Without a single ma racks can be transferred tank, dipping or by-passir may require, delivering discharge on a perfectly Plating, anodizing, stre cleaning, phosphate co ping, painting, etchi other finishing proce cally and economical

Constant leadersh development over ensures a complete cision finishing p efficiency of veyor systems u understanding.

Self-lubricatin (E) is used for either one of w steps in the o circuits may b conveyo

$3NH_4Cl$, has remained unchanged during these years. Much has been learned about the things that can be done with this compound itself and its water solutions. The melting point is recorded as 644 degrees Fahr., and only as this temperature is ap-

PLATEMANSHIP

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

INDUSTRY'S WORKSHOP FOR THE

Levelume

READ ABOUT THE NEW PRODUCTION-PROVED H-VW-M NICKEL PROCESS THAT COMBINES BRIGHTNESS AND EXCEPTIONAL LEVELING WITH UNUSUALLY HIGH SPEED

This outstanding, new, high-speed LEVELUME PROCESS has all these advantages—

HIGH BRIGHTNESS — Recessed areas have uniform brightness without shading . . . subsequent deposits are brighter.

EXCEPTIONAL LEVELING—Because of high scratch-filling properties, polishing and buffing can be substantially reduced, sometimes even eliminated. Enormous savings result.

WIDE CURRENT DENSITY RANGE — Can vary from 20-150 asf (normal 60-100 asf). Higher current densities mean faster plating and reduction in equipment, floor space and manpower.

HIGH THROWING POWER — Recesses are covered satisfactorily and good distribution of deposit makes specification conformance possible without piling-up nickel on exposed portions.

CONTROLLED STRESS—No cracking, crazing, lifting or brittleness of deposits.

HIGH DUCTILITY — Comparative tests show good ductility, maintained even after continued bath use.

EXCELLENT CORROSION PROTECTION—Equal to deposits from other bright or leveling solutions.

VERSATILE—Can be used as single coating or, if higher corrosion protection is desired, a Nickle-Lume top coat can be applied.

EASY SOLUTION CONVERSION TO LEVELUME—With few exceptions other bright nickel baths can be converted.

HIGH SURFACE ACTIVITY — Plated surfaces accept chromium and other deposits without activating treatments. You'll experience none of the ordinary difficulties of other bright nickel processes with LEVELUME. One manufacturer reduced chromium plating rejects 12 per cent using Levelume.

— and these advantages, too . . .

- Bath Stable in Operation
- Pleasing White Color Deposits
- Simple Control
- No Objectionable Fumes
- High Tolerance to Impurities
- Low Operating Costs

LEVELUME is already proving its unusual value to enthusiastic users across the country. You can get complete details, and the Levelume Instruction Manual, by writing H-VW-M.

HANSON-VAN WINKLE-MUNNING COMPANY, MATAWAN, NEW JERSEY

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the original, firesafe, strippable

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No more "heavy-overtime" for booth cleaning! Simply spray "Liquid Envelope" on a clean booth. When over-spray accumulates, peel booth clean in minutes. Then re-spray. It's as simple as that. Firesafe, too. "Liquid Envelope" film will not burn or support combustion. Used coast-to-coast for over 10 years. Start saving soon by ordering a 5-gallon test-sample at drum-lot price.

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Your customers will be pleased with the bright, clear finish you get with Cowles FE Cleaner in your electrocleaning tanks.

No soil load is too heavy—no crevice too fine. Cowles FE Cleaner gets there—does its job quickly—rinses easily and thoroughly.

You can depend upon Cowles FE Cleaner because it is built for

- —heavy duty electrocleaning on ferrous metals
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COWLES CHEMICAL COMPANY
Metal Cleaner Department
7016 Euclid Avenue Cleveland 3, Ohio

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Merry Christmas

products finishing

EDITORIAL STAFF

FINISHING

Question: *We are finding it extremely difficult to establish engineering specifications to govern various types of electroplated finishes on ferrous and non-ferrous machined parts. Some of our present specifications are for cadmium, satin chrome, polished chrome, bright nickel, nickel plate and buff, hot and electro tin and black oxide.*

Do you know of any way we might set up a control that will be practicable? Any information you may have along these lines will be greatly appreciated.

A. F. K.

Answer: We have your letter requesting information on engineering specifications of electroplated finishes.

The American Society for Testing Materials, 1916 Race St., Philadelphia, Pa., has available a set of standards for plated finishes in various service environments. This will give you some idea of service requirements.

Actually, platers will provide you with plated finishes as good as you specify.

——— *fc* ———

Question: *We are manufacturers of pipe nipples, most of which are made from regular steel pipe. We have one customer who wants his nipples coated with a dull black finish, more for appearance than protection.*

Can you outline a simple means of doing this to the pipe nipples? Nipples will vary from 1 to 48 inches long and in diameter from ¾ to 4 inches.

S.

Answer: We have your letter in which you request information on a simple means of coating both short and long sections of pipe with a dull black finish.

The simplest method of doing this would be to employ paint dipping racks and a dip tank. You may be interested in seeing the article, "High Production Automatic Dip Finishing System," published in the April issue of PRODUCTS FINISHING, in which a fully automatic dipping and baking cycle was described.

Another type of black finish could be obtained by dipping in one of the proprietary "black oxide" solutions.

We are referring you to a number of finishing equipment manufacturers and process suppliers who should be able to offer specific suggestions as to efficient means of accomplishing your purpose.

——— *fc* ———

Question: *We are trying to plate cast and malleable iron with zinc, using a cyanide zinc solution. We have tried all the recommended methods of plating over cast iron directly, including giving a prior cadmium and copper plate.*

CLINIC

Over copper plated cast iron parts we do not get any zinc plate in recesses, although we do get complete zinc plate over similar steel parts in the same bath. What is causing this? What is the reason you cannot plate zinc over cast or malleable iron?

T. B.

Answer: Cast iron has always been difficult to zinc plate. Quoting directly from page 308 of "Principles of Electroplating and Electroforming," by Blum and Hogaboom:

> "Cyanide baths cannot be used to deposit zinc directly on malleable or cast iron unless special steps are taken in the preparation of the basis metals."

For suggestions on what steps to take in depositing zinc on cast iron, we are referring you to several sources of information.

If any of the sources mentioned above can suggest treatment for the cast and malleable iron so that it can be zinc plated at all, it could be barrel plated as well as still tank plated.

——— *fc* ———

Question: *Please advise the proper grade or grit of sand to be used with a portable sandblast gun for removing paint from motorized vehicles.*

Also, what is the operating pressure (air), to give the most satisfactory results for such a gun?

H. T. A.

Answer: For more complete information on this subject, we are referring you to a number of companies who will be able to make specific recommendations as to guns, air pressures, and abrasive materials, since the three are closely related in this operation.

——— *fc* ———

Question: *We manufacture the Acme Quality Folding Chairs which carry steel bracing rods as shown in the enclosed folder. Our customers who live at the seaside have complained that these rods rust in the salt air. Will you please tell us where we can get our hardware treated to eliminate rusting? Do you recommend having our hardware electrogalvanized, or would it be best to use Monel instead of these finishes?*

We shall deeply appreciate any help you can give us with this problem.

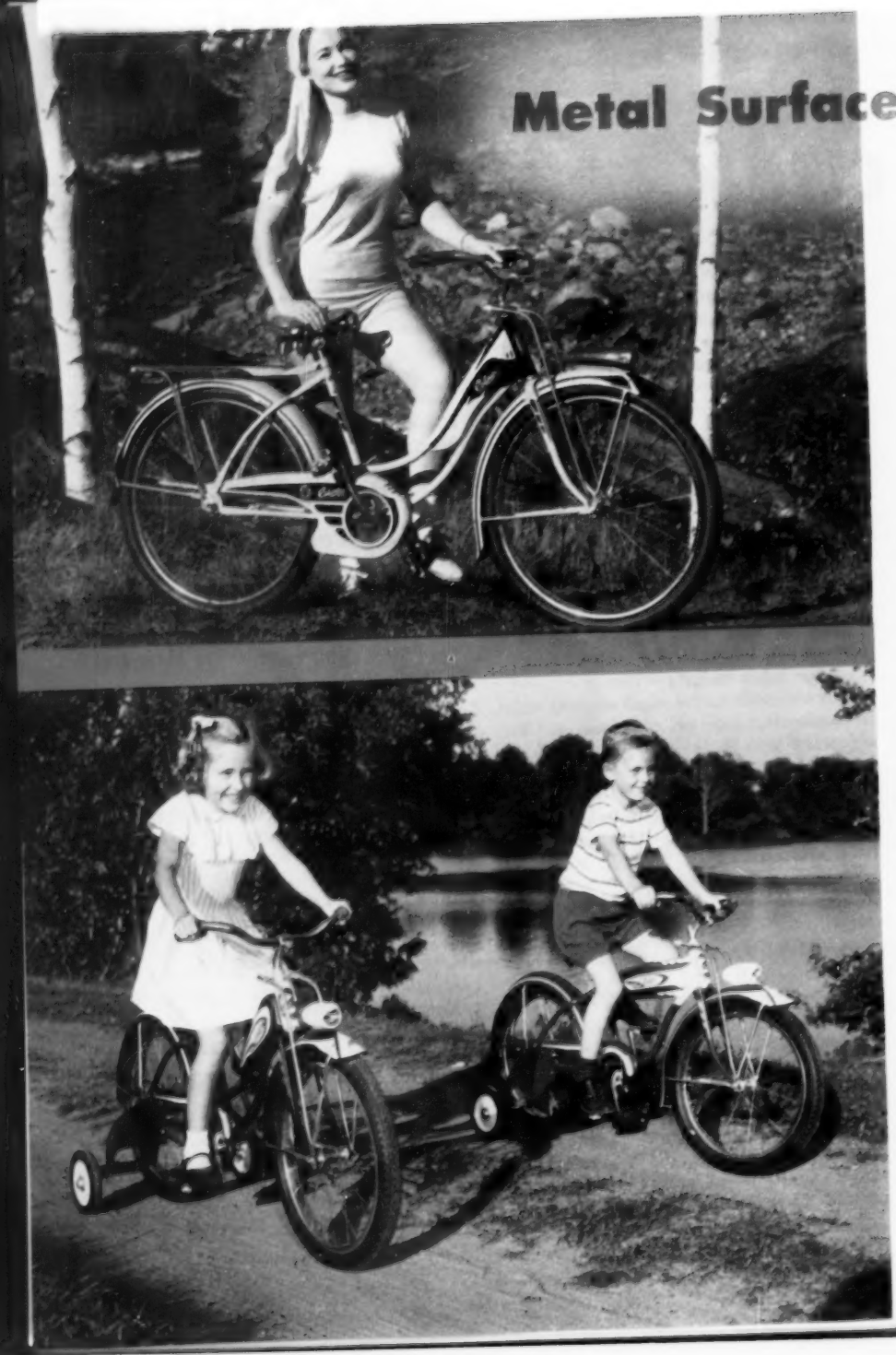
H. F. S.

Answer: The steel parts used in manufacturing your chairs will be substantially improved with regard to rust resistance if these parts are given one of the many phosphatizing process treatments prior to painting. Frankly, it does not seem practical to have phosphatizing done away from your own factory. We are referring you to manufacturers of phosphate chemicals who can supply information on methods of treating these parts.

DO YOU HAVE A FINISHING PROBLEM?

The editorial staff of PRODUCTS FINISHING is prepared to aid you in the solution of your problem.

There is no charge for this service.


Metal Surface

Preparation and Finishing of Columbia Bicycles

"Since 1877, America's FIRST Bicycle"

IN 1877, COLONEL ALBERT A. POPE, the founder of the American Bicycle Industry, made industrial history when he began manufacturing Columbia bicycles in Boston. Colonel Pope was one of the giants of nineteenth century engineering enterprises and his venture — The Pope Manufacturing Company — flourished with amazing speed and vitality. Within a short time, bicycles "built by Columbia" gained renown throughout the world, and the 1891 Columbia catalog (Fig. 1) stated confidently that, "We put it (The Columbia Light Roadster) out for its seventh season with its reputation established for elegance, ease of running, and strength, and fully justified in claiming for it the first place among all machines of its class in the world. It is too well known to require much description."

Strange as some of the old Columbias looked, (Fig. 2) they represented the mechanical genius of the day and many of their patented features provided the basic mechanical parts for the automobile industry. Diamond Jim Brady owned a dozen specially built Columbias with gold plated frames, silver plated spokes and studded with diamonds and rubies. His Columbia triplet tandem was one of the first three-seaters ever made.

In the early 1900's, the old Pope Company moved to Westfield, Massachusetts and eventually became The Westfield Manufacturing Co. **Today's "Columbia"** and Columbia-built bicycles are a far cry from the old high wheelers, and early

★ ★ ★

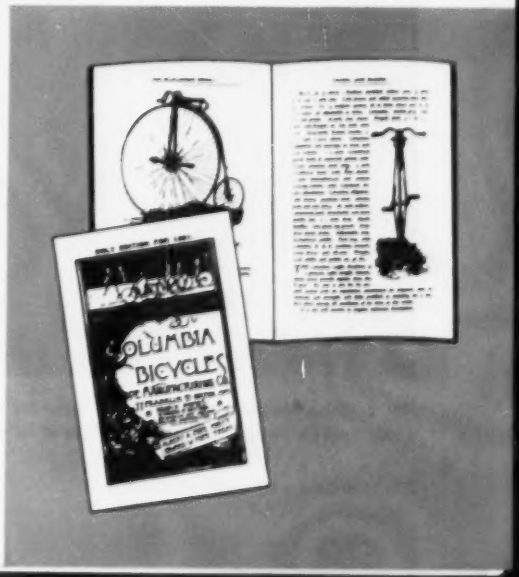


Fig. 1—Cover and typical inside pages of early Columbia catalog. Development of many mechanical features of the modern bicycle can be traced in company's old catalogs.

Fig. 2—An example of an early advertisement for the Columbia Light Roadster Safety.

"Safeties." The answer lies in modern machinery, streamlined operations, and a heritage of fine craftsmanship. At Westfield, over two hundred of the finest bicycle workers in the country have been with the company for over forty years. This great reservior of skill, and more important, tradition, has made possible the widespread acceptance of "Columbia" bicycles ever since 1877.

Today, in a well-designed, compact plant, The Westfield Manufacturing Company can produce every month more bicycles and better bicycles than used to be made by the entire industry in any one year. A brief glance at the mechanical features of the "Columbia" bicycle will indicate the heights to which bicycle fabrication has risen.

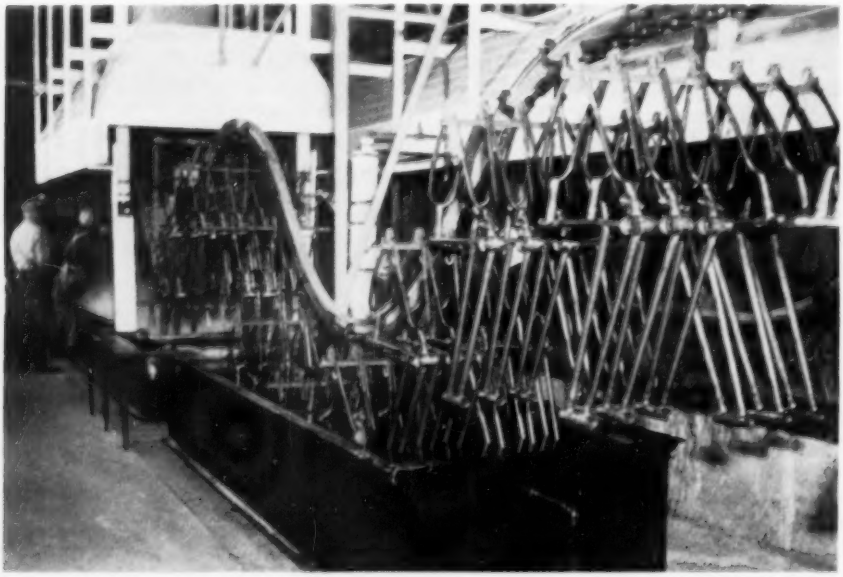


Fig. 3—Steel bicycle frames emerge from the pickling tank (background), make a U-turn, and enter second stage rinse tank. Process is automatic except for loading, unloading.

Take Columbia's new Therm-B-Matic frame. This is basically different from any frame ever built in the industry and it embodies more improvements than any new construction introduced by the company in its long history. Electric welded tubes of special analysis steel are joined by silver-alloy brazing which produces joints of great strength, clean of weld metal. This makes possible not only a stronger frame, but also paves the way to enhanced appearance of the subsequently applied enamel.

Other mechanical features which make the "Columbia" bicycle an efficient vehicle include: the front hub, turned from a solid steel bar and chromium plated for attractive appearance and rust proofing; a chromium plated dust cap at top of the frame head which protects head bearings and other steering mechanism from dust, grit and dirt; and, as an extra on some adult models, an internal expanding type front wheel brake with caliper cable control.

Columbia Color

Color undoubtedly plays just as important a role psychologically as the paint finish plays physically in insulating vulnerable metal from moisture, oxygen, sunshine and other harmful influences. Otherwise, bicycles and even automobiles might just as well be finished in a rugged but monotonous battleship grey. But people are not attracted by monotones. They want gay colors and harmonious combinations of these; and, in fact, this is often the govern-

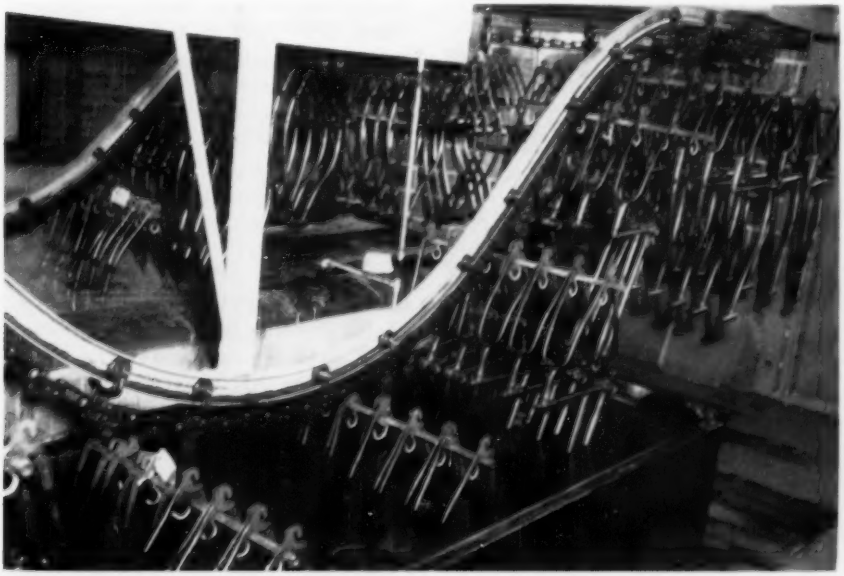


Fig. 4—Another view of the pickling installation. Tank in the foreground is the clear water rinse. Tank in the background is the "Deoxylyte" final rinse. An exhaust hood withdraws vapors.

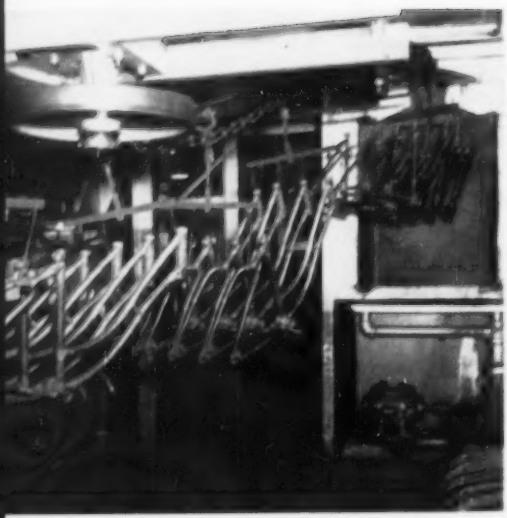


Fig. 5—Bicycle frames entering the first stage of the metal preparation cycle. This is performed in a five-stage power spray machine.

Fig. 6—An overall view of the five-stage power spray phosphatizing tunnel. Parts to be processed pass through opening at left.

ing factor in their buying habits. Every dealer and every salesman is aware of the potent appeal of a fine paint job.

"Columbia" Bicycles observe this theory of color and are painted to create an almost irresistible appeal to the cyclist, with an artistic combination of rich, lustrous, two and three-tone color finishes, and attractive, decorative patterns. All Columbia finishes are highest quality automotive type enamels, baked on at a high temperature. They provide a protective and decorative coating comparable in quality with standard automotive finishes.

On most "Columbia" models, the paint finish is in a basic shade of red, green, or blue, while the decorations, developed in Westfield's engineering department, are in lighter shades of the same colors. Decorations are usually applied to the frame head, seat mast tube, fork, fenders and chain guard. Some "Columbia" bicycles feature double and single gold striping on various tube members which are finished in maroon, blue, or black. Still other models are supplied with ivory decorations in the fork and frame head, with an ivory-colored chain guard to enhance this functional unit.

Metal Surface Preparation

Paint finishes on "Columbia" bicycles are not only attractive but durable. Exposed to all kinds of weather and subjected to all the abuse that bicycles normally receive from their riders, "Columbia" models nevertheless preserve their original luster for years, and even where

small pieces of the finish have been knocked or chipped off, there is no rusting beyond the bare spots.

The reason for such a rugged paint finish is, in addition to the use of a good enamel, the logical one of correct surface preparation, of satisfactory and thorough cleaning and conditioning of the steel before the application of paint. Westfield never has believed in skimping of quality and this policy includes the finishing department.

In preparing its bicycles for painting, the Westfield Manufacturing Company encounters several problems. These are common to many plants and are a constant threat to quality finishes. First, there is ordinary surface soil picked up by the parts during fabricating operations —forming compound, protective oil, dust, and fingerprints—which, if left on the steel, can quickly destroy the bond between paint and metal. Then, where the bicycle frame is brazed together at the joints, a thin film of adherent scale is formed. Although its initial adhesion is frequently good, scale tends to loosen in time and to flake off, along with the paint which covers it. Therefore, it is necessary to remove this layer of scale completely, preferably before the frame receives any further conditioning for painting.

Westfield's pre-paint processing to remove scale and rust specifies pickling in "Deoxidine*." "Deoxidine" is a phosphoric acid metal cleaner and rust remover which not only removes rust, but destroys or neutralizes rust stimulators. It tends to passivate ferrous metal surfaces.

*Product of American Chemical Paint Co.

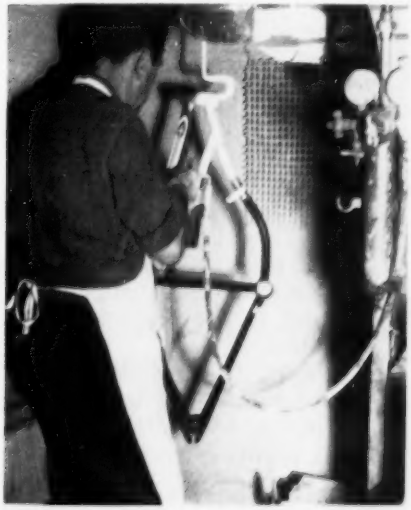


Fig. 7—Spray finisher is decorating bicycle frame. Mask is used on horizontal member of the frame while design is being sprayed.

Fig. 8—Hand decorating a bicycle frame requires great skill. The special brushes required for this exacting work are shown at right.

The present pickling cycle on frames is as follows:

1. Pickle for 18 minutes in a 17 per cent solution of "Deoxidine" No. 170 operated at 165 deg. F. (Fig. 3).
2. Rinse for 45 seconds in lukewarm, overflowing water.
3. Immerse for 45 seconds in a weak, hot solution of "Deoxylyte*" acidulated rinse (Fig. 4).

Frames are hung on cross-rods suspended from an overhead monorail conveyor for processing through the pickling cycle. The three tanks and conveyor are grouped so that a return-type 57-minute cycle results. Overhead exhaust vents remove steam from heated solutions.

The "Duridine*" phosphatizing process is employed to provide a base for "Columbia" finishes.

Fig. 9—A white stripe is being hand painted on a Columbia bicycle fender. Striping is done by revolving the fender on a wooden wheel while holding the brush stationary. Special long bristled camel's hair brush is used.

"Duridine" is a combined cleaner and phosphate-coating chemical. At the Westfield Manufacturing Company plant, it is applied in a mild steel power spray washer (Figs. 5, 6) through which the work passes on an overhead monorail automatic conveyor. It cleans normally soiled metal surfaces, and on pre-cleaned work washes away soil residues left in marginal cleaning. In addition, "Duridine" reacts chemically with clean steel surfaces and forms on them an adherent, paint-retentive coating of iron phosphate, integral with the metal. Paint flows into the minute, crystalline interstices of the "Duridine" coating and, when dry, is firmly bonded to the metal.

The process cycle at Westfield, together with temperatures, tank capacities, and spray pressures, is as follows:

1. "Ridoline*" No. 46 and "Ridosol" No. 250; temperature, 155 deg. F.; tank capacity, 1,187 gallons; 21 p.s.i.
2. Fresh water rinse; temperature, 162 deg. F.; tank capacity, 1,212 gallons; 24 p.s.i.
3. "Duridine" spray; temperature, 155 deg. F.; tank capacity, 1,188 gallons; 18 p.s.i.
4. Fresh water rinse; temperature, 82 deg. F.; tank capacity, 1,267 gallons; 16 p.s.i.
5. "Deoxylyte" acidulated rinse; temperature, 150 deg. F.; tank capacity, 484 gallons; 12 p.s.i.

Several painting techniques are utilized in the Westfield plant. Fenders, which present the least complicated surface for paint application,

*Product of American Chemical Paint Co.

are dipped manually into a tank containing a specified enamel, are then hung by hooks on an overhead monorail conveyor which carries them to the baking oven. As they move slowly away from the "dunking" tank, excess paint drips slowly off the bottom edge of each fender into a trough which carries the drippings, free of dust or other soil, back into a container for re-use. The rate of drip is not left to chance. It is a scientifically controlled process so regulated as to leave no perceptible bead on the painted unit. The secret of bead-free painting lies in maintaining the viscosity of the paint at a predetermined value.

The frames cannot be effectively painted by dipping; they are spray painted by skilled operators working in individual paint booths. Both the comparative intricacy of the frame and the cylindrical contour of the tubing require special attention. The spray painter must cover every part of the frame to produce a protective finish with unblemished continuity and he has to accomplish this with a minimum expenditure and wastage of paint. At Westfield, well developed techniques and careful workmanship make possible thoroughly, economically and rapidly painted frames (Fig. 7).

Decorations are applied by three different methods. Fender and frame decorations, for example, which augment the general theme of streamlining are quickly superimposed on the elemental finish by spray painting through metal stencils which fit the convex contours of the fenders and the tubular shape of the frames exactly. These stencils are designed and constructed by a special division in the engineering department.

Striping, which would be rather cumbersome to do with a stencil, is quickly and efficiently put on fenders and tubing by operators—using long, bristled camels hair brushes (Figs. 8, 9). In these striping operations, skill and artistry have been developed to a high degree so that the quality job specified for each "Columbia" bicycle is consistently obtained.

The "speedline" design and the

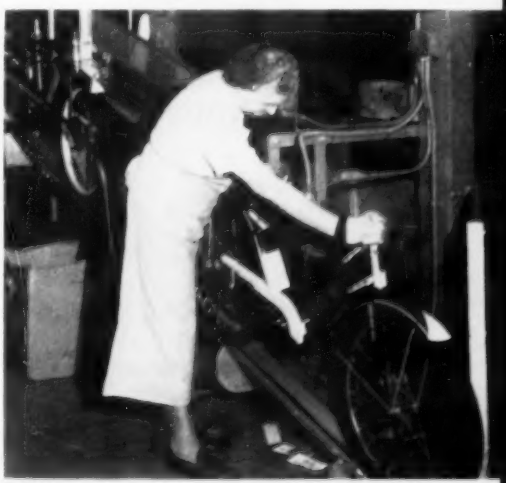


Fig. 10—Painted Columbia bicycles are delivered to the inspection area from assembly room on an escalator. (Photos courtesy Westfield Mfg. Co., Westfield, Mass., and American Chemical Paint Company, Ambler, Pa.)

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name "Columbia" are applied by still another technique—the popular silk screen method.

A Good Reputation

Recently, The Westfield Manufacturing Company was presented with the Brand Names Foundation Golden Anniversary Certificate of Public Service. This award is "Given to Brand Names which have been tested by the judgment of the American people for 50 years or more (Columbia is in its 77th year) and have won and held public confidence through unfailing integrity, reliable quality and fair pricing." The award also represents twelve other brands of The Westfield Manufacturing Company in continuous manufacture for over fifty years.

In holding public confidence, product durability as well as functional efficiency plays an important role. The "Columbia" Bicycle enjoys a fine reputation because it has been and continues to be designed and built by men working in a tradition of good bicycle craftsmanship. But the "Columbia" is an aesthetic treat as well as a functional masterpiece (Fig. 10). The paint finish has lasting beauty and protects the metal beneath.

★ ★ ★

DIE CASTING—HOW ELSE WOULD YOU MAKE IT?—A 35 minute, 16 mm. color and sound film depicting the scope and versatility of the die casting process by illustrating the production and use of die castings in the world of commerce, industry, transportation and the home may be borrowed without charge by writing the **American Zinc Institute**, 60 E. 42nd St., New York 17, New York.

WAITING FOR A MIRACLE IN WHITE BRASS ALLOYS?

This is not the familiar argument that white brass alloys are destined to replace nickel in the chrome process. It *is* a statement of fact about how leading platers have solved the problem of metal shortages and have saved money in so doing.

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Determining Surface Area Of Sheet Metal Stampings

By L. A. CRITCHFIELD
R. O. Hull & Co., Inc.

IT IS OFTEN DESIRABLE, or necessary, to determine the surface areas of stampings which, because of shape and contour, are difficult to measure or calculate from dimensions. The area can, however, be estimated with reasonable accuracy from the weight of the part and its thickness by using the formula:

$$A = \frac{W}{TM}$$

Where A = Area of both sides in square inches.
W = Weight of part in ounces.
T = Average thickness in inches.
M = Metal Weight in pounds per cubic foot x 16 (oz.) / 2 (sides) x 144 (A in sq. ft.) x 12 (T in ft.)
= Wt. per cu. ft. / 216

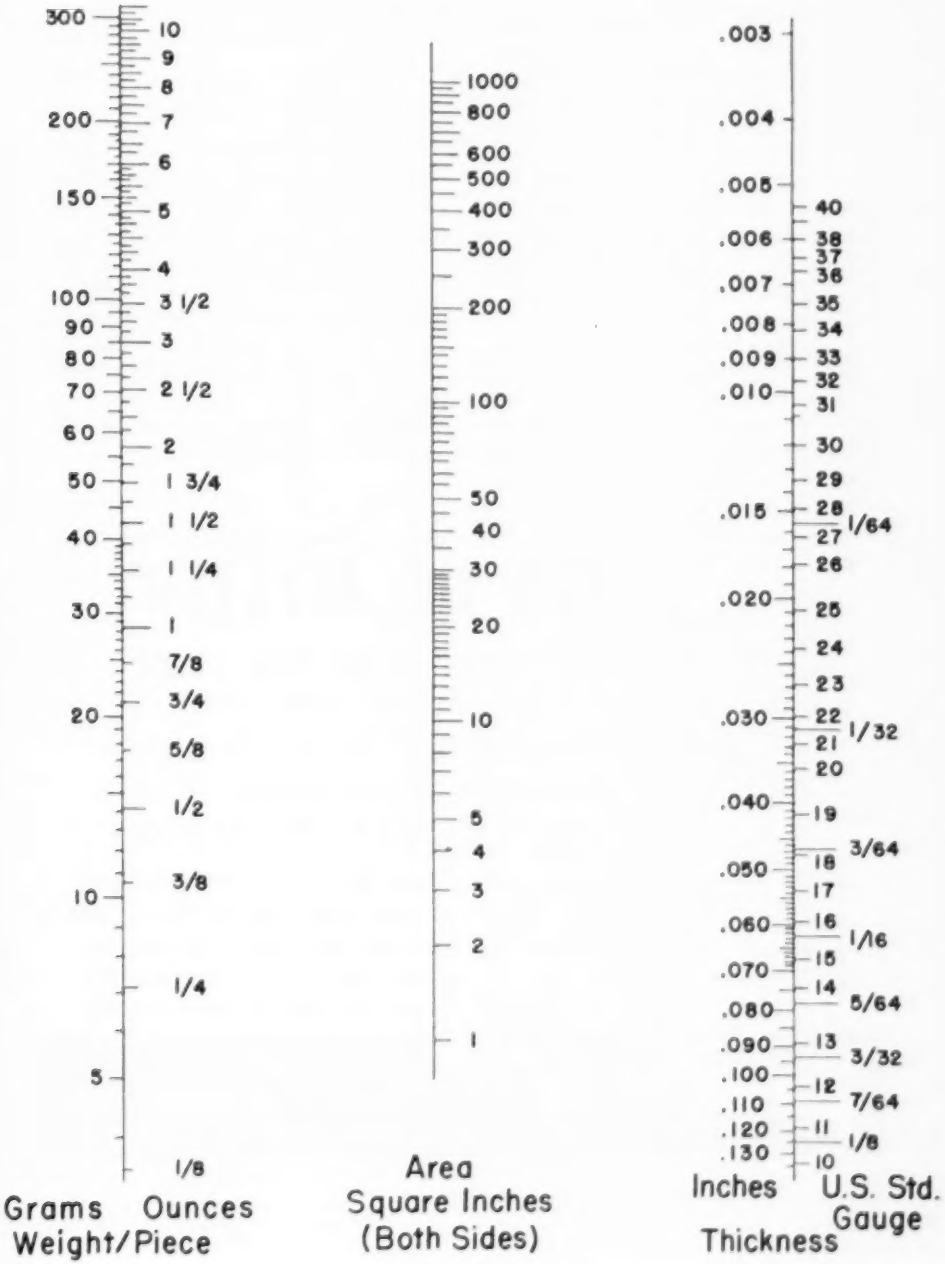
Chart I is a nomograph prepared from this formula for use with steel stampings using the commonly accepted value of 490 pounds per cubic foot. The formula now becomes:

$$\frac{W}{T} = 2.27\ A$$

To use this chart it is only neces-

CHART I

Total Surface Area — Sheet Steel Stampings



Grams Ounces
Weight/Piece

Area
Square Inches
(Both Sides)

Inches U.S. Std. Gauge
Thickness

sary to weigh a few parts to determine the weight per piece and measure the thickness with a micrometer. A rule is then laid across the chart from the point on the weight scale to the point on the thickness scale. The area is indicated at the point where the rule crosses the area scale. For example, a part weighing 1 ounce made from 25 gauge (0.0209 inch) steel would have a total surface area of 21 square inches.

For very small parts greater accuracy is obtained by using the weight of several parts and dividing the area obtained by the number of pieces. Similarly, if the weight is beyond the limit of the scale, a fraction of the weight can be used and the indicated area multiplied to obtain the full area.

Chart II is a similar chart for brass stampings using 540 pounds per cu. ft. M now becomes 2.50. The formula then is:

$$\frac{W}{T} = 2.50\ A$$

This chart is exactly like Chart I except that the area scale has shifted upward slightly due to the greater density of brass, and the B & S Gauge is used for brass instead of the U. S. Standard or Revised Manufacturers' Gauge which is used for steel. **Chart III** is the nomograph for aluminum stampings using 172 pounds per cu. ft. as an average value for aluminum alloys. This makes M equal to 0.795 and the formula:

$$\frac{W}{T} = 0.795\ A$$

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CHART II

Total Surface Area — Sheet Brass Stampings

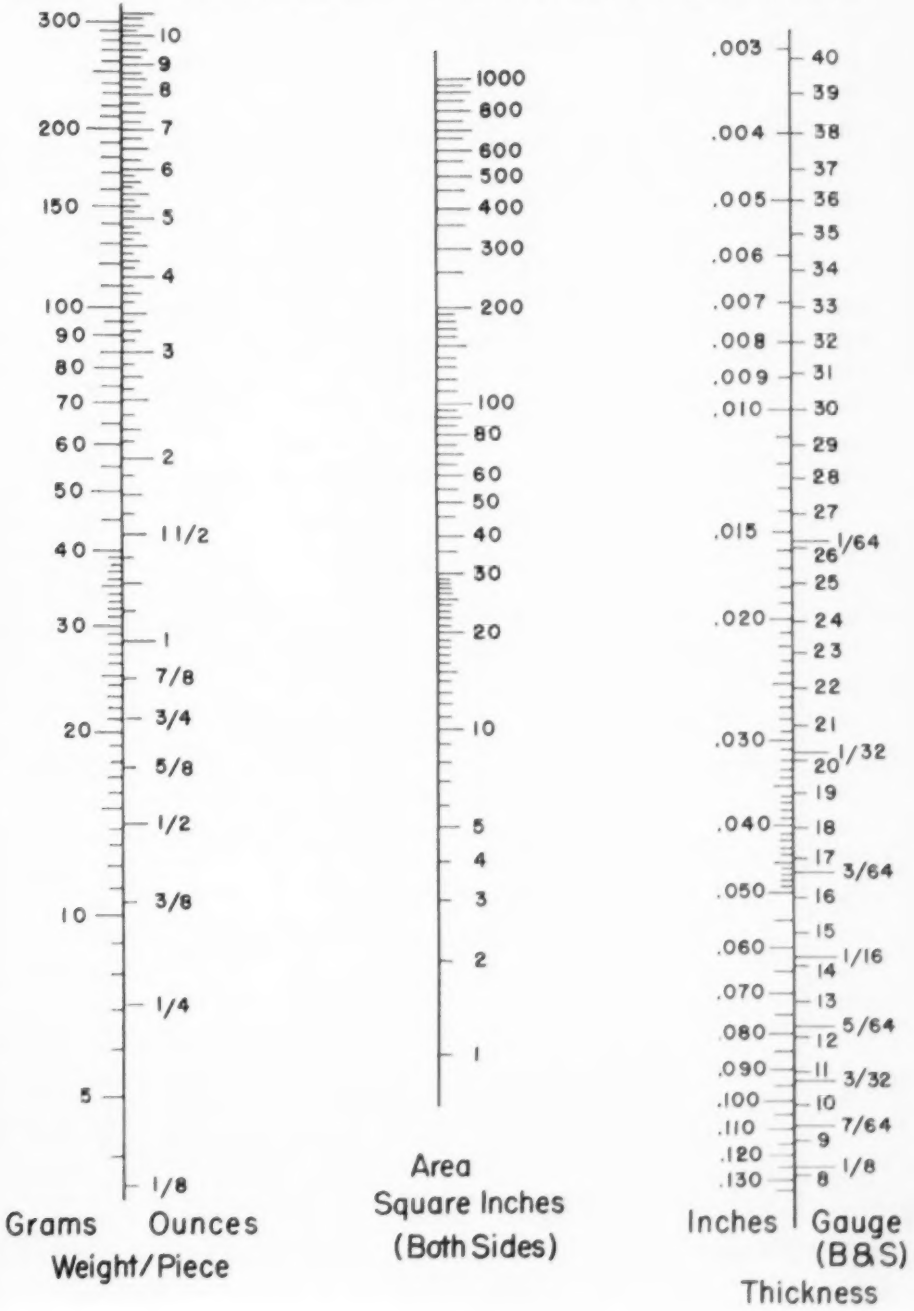


CHART III

Total Surface Area — Sheet Aluminum Stampings

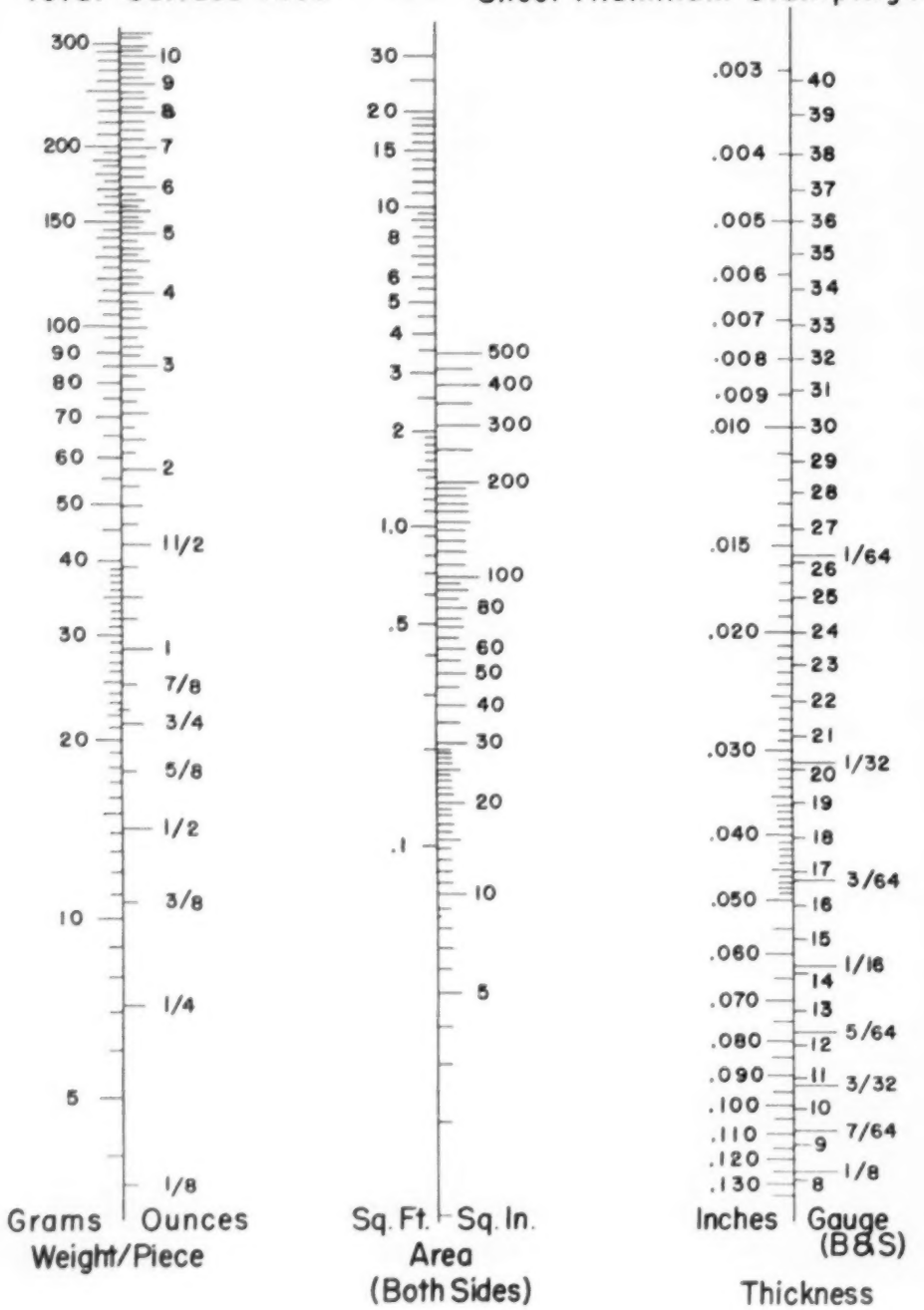
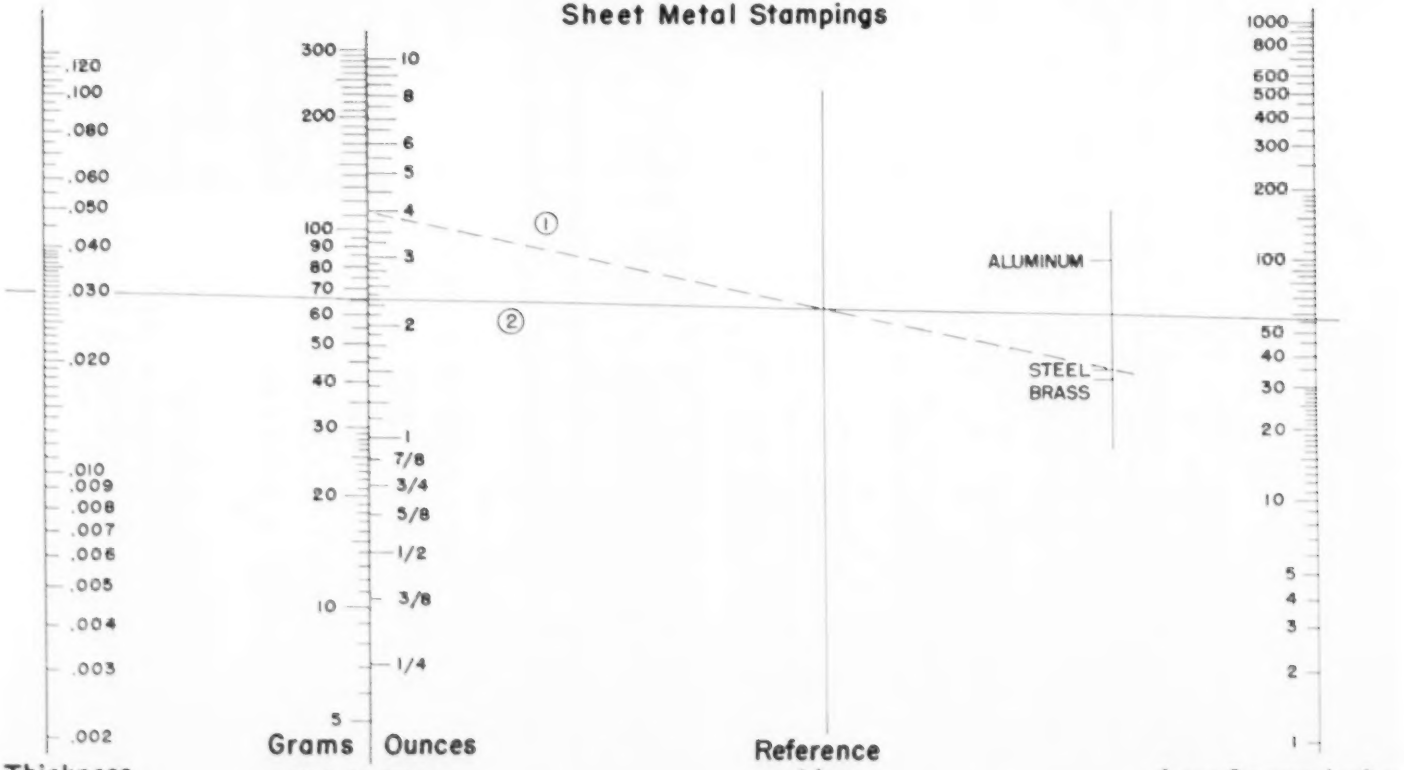


CHART IV

Total Surface Area
Sheet Metal Stampings



(Both Sides) Thickness

Determining Surface Area

This chart is used in the same manner as the previous charts.

For those working with several metals instead of one, it is convenient to combine the several charts into one. This can be readily done by the introduction of a reference line and an "M" scale.

While the formula $A = \frac{W}{TM}$ can be arranged in many ways, the chart obtained by the arrangement:

$$AT = X = \frac{W}{M}$$

has the advantage that the A, T, and W scales all ascend in the same direction and are located to improve the accuracy of the readings.

To use this chart (Chart IV) a line is laid across the chart from the weight per piece to the proper metal (1) and the point of intersection with the reference line indicated. A line is then extended from the thickness scale through the indicated point (2) to the area scale. An example is shown on the chart for a steel stamping weighing 4 ounces and of 0.030 inch thickness. The area obtained is 58 square inches.

While not exact, the densities of aluminum, bronze and stainless steel are sufficiently near to that of steel that areas for these metals may be reasonably approximated by use of the point for steel. Similarly, areas for copper and nickel silver may be obtained by use of the point for brass.

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Christmas Greetings

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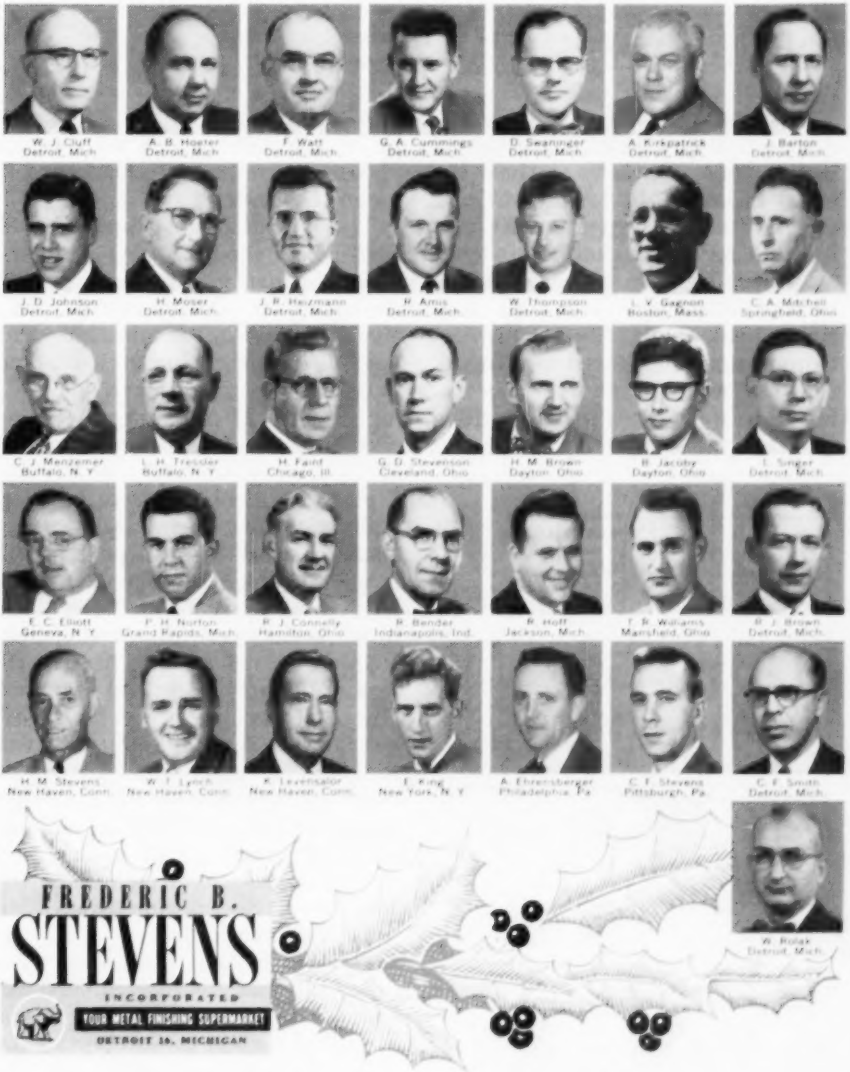
from THE STEVENS TEAM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Applications for Epoxy-Based Finishes

By O. L. NIKLES
Shell Chemical Corporation

AMONG THE SURFACE COATINGS based upon synthetic resins, the epoxy-based coating systems are among the more recent entries into the field. Although known for a longer time, this class of coatings has been commercially feasible only since 1946, when Shell Chemical Corporation introduced raw materials that would allow the epoxy resins to be formulated at competitive prices. In 1947, Shell also began making the resin itself, marketing it under the trade name "Epon."

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

"Okay, Clifford! Keep your mind off your work and get busy with the spray gun."

The acceptance of epoxy-based coatings in the Finishing Industry has been due, in large measure, to the versatility of these coatings, their chemical resistance, adhesion, and flexibility, and because they combine many desirable features in one coating system. These systems exhibit resistance to attack by water, acids, alkalies, aromatic and aliphatic hydrocarbons, alcohols, esters, ketones, and many other chemicals.

Epoxy-based coatings exhibit properties which are dependent upon the curing mechanism used. The three most important curing mechanisms are as follows: (1) the reaction of the epoxide and hydroxyl groups of the epoxy resin with various fatty acids: (2) the reaction of the epoxide and hydroxyl groups with the methylol group and hydroxyl groups of other high molecular weight resins, such as urea and phenol formaldehyde resins; (3) the reaction of the epoxide group with polyfunctional amines.

Coating systems of the first type are used as automotive primers, can linings, and in maintenance paints. Depending upon the properties desired, different proportions of fatty

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acids and epoxy resin are used in formulating these coatings. Formulations with a relatively large portion of fatty acid, for instance, are used as tank coatings, and in maintenance paints, where good exterior durability is required. These coatings exhibit good gloss retention and minimum yellowing. In addition, they give good chemical resistance.

Coatings which use the second type of curing system (urea and phenolic resins) are used for paints where a combination of a high degree of solvent and chemical resistance and good flexibility and adhesion are desired. Baking at 300 to 400 deg. F. is necessary for these systems. The films obtained in this manner exhibit a high degree of chemical and solvent resistance, including excellent caustic resistance, and are so flexible that steel sheets may be formed, after coating, into drums or cans without damaging the film. True whites are not possible with these systems, due to the color contributed by the phenolic resin, but pastel shades are possible. Coatings such as these find application as protective films for pump bases, pipe interiors, tank interiors, tank exteriors, and drum interiors. They are also used as can coatings.

When a urea formaldehyde resin is the curing agent used, the films obtained exhibit good color retention as well as chemical resistance and flexibility. These formulations find application as appliance finishes, can coatings, and in metal decorative and clear metal finishes. The two largest uses for this type of coating are as washing machine primers, where excellent hot detergent resistance is required, and metal laboratory and hospital furniture finishes where excellent color, chemical resistance, abrasion and mar resistance are necessary.

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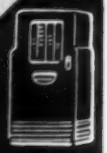

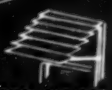

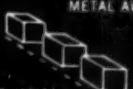

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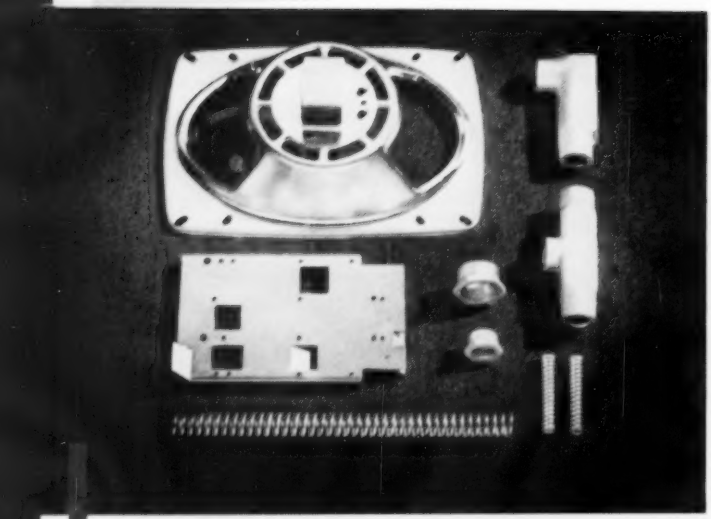

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Surface preparation and proper methods of application are important for successful use of all epoxy-based coatings. Although

these coatings may be applied over existing paint, or on wire brushed surfaces, it must be remembered that adhesion will be dependent upon the condition of the underlying surface. Best results are obtained over surfaces which have been sandblasted. The use of an inhibitive primer is important where maximum life of the coating is required, since this minimizes undercutting of the film in case it is damaged. Epoxy-based formulations pigmented with zinc chromate, red iron oxide, strontium chromate, and red lead pigments have been found to be effective in this type of service.

As with any coating system, cleanliness of the surface and complete coverage with the coating are of prime importance. Excessive dust on the surface or pinholing of the film results in early failure of the coating due to corrosion.

Adapted for publication in PRODUCTS FINISHING from an article published in the "Official Digest" of The Federation of Paint and Varnish Production Clubs, and printed by permission of the Federation.

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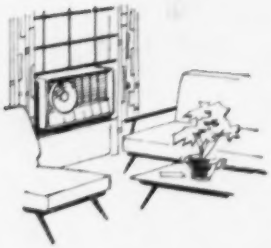

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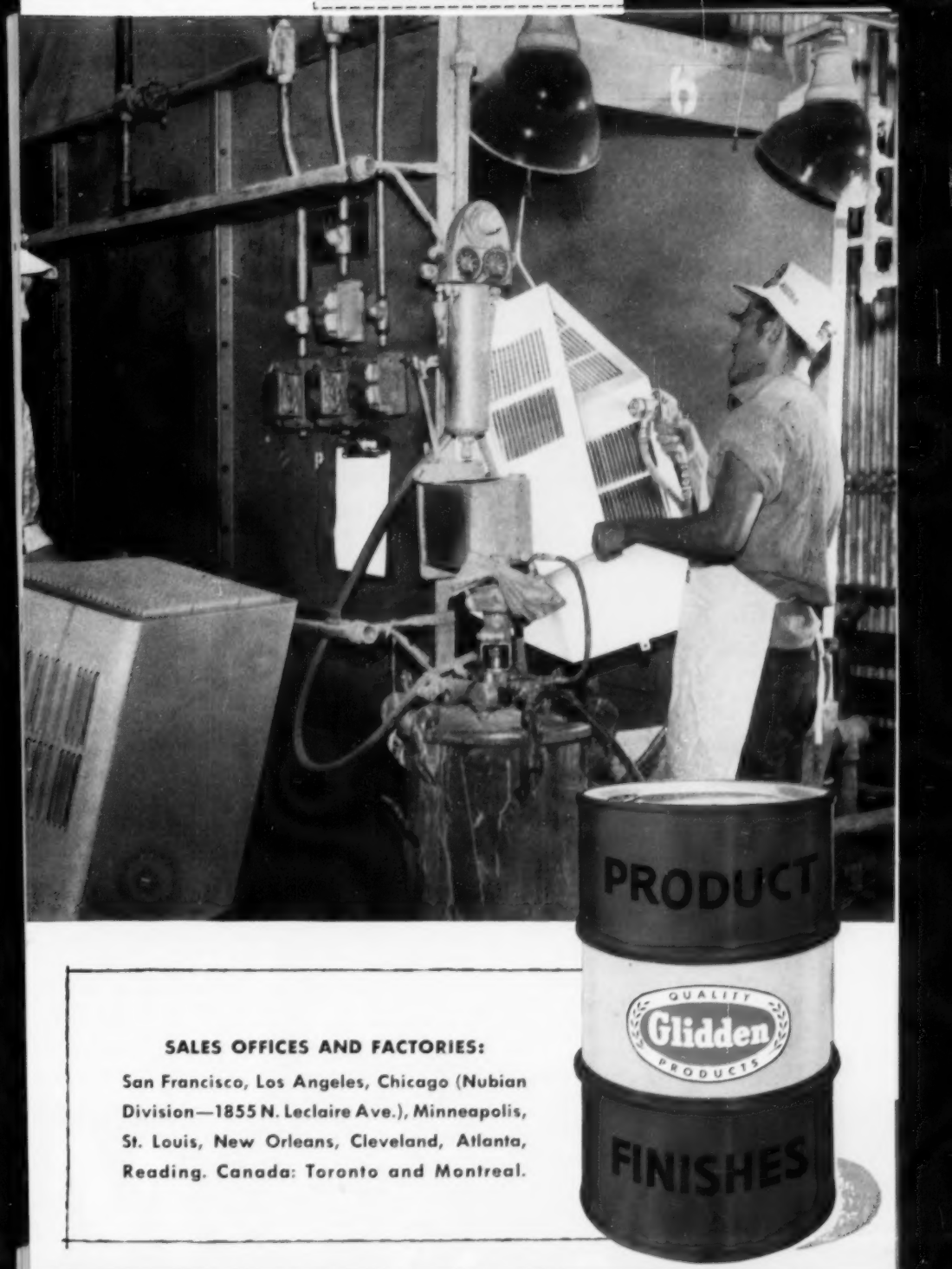

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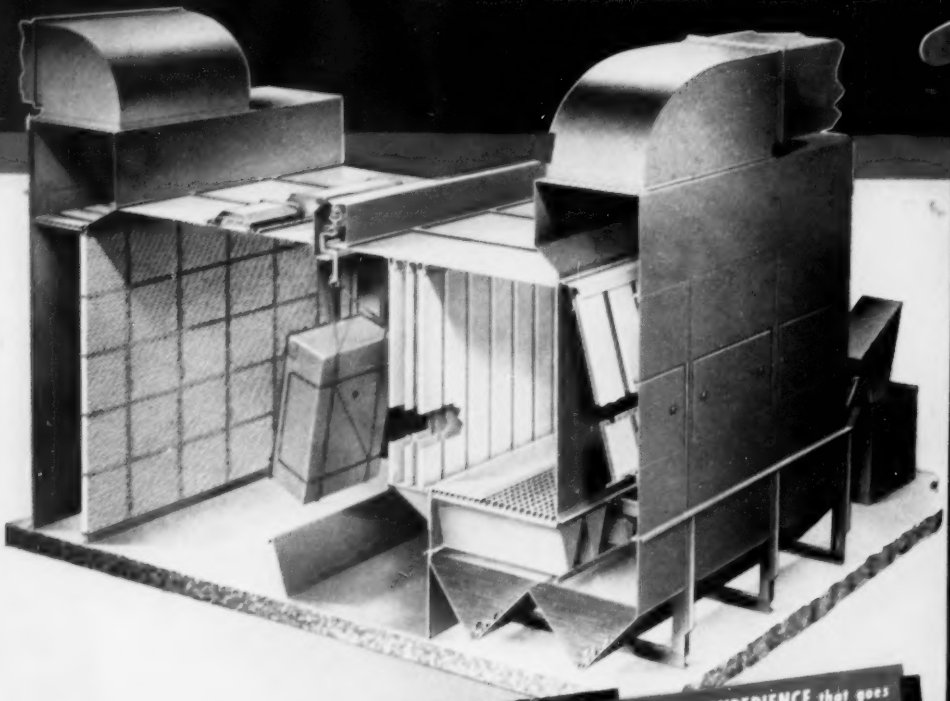

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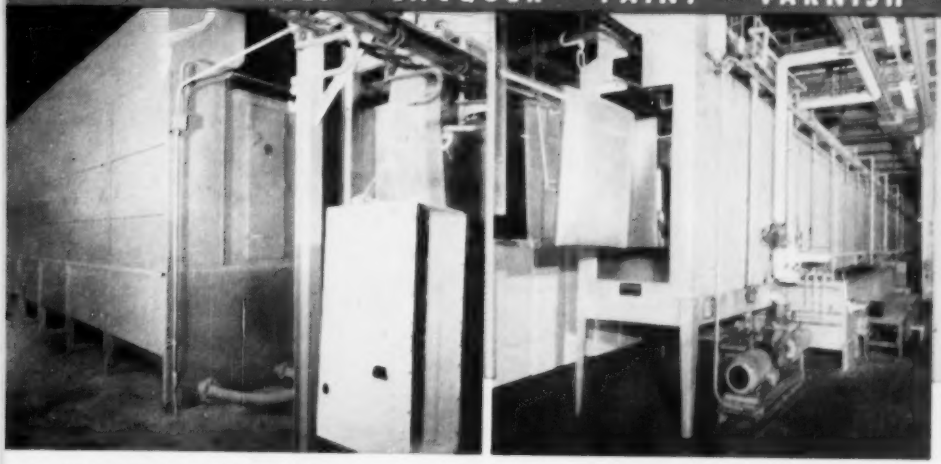

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Brush Plating

THUS FAR THE PROCESS of brush plating in this country has been confined largely to the home workshop and to minor touching up where appearance was the only consideration. It has had little, if any, use as a finishing operation in ordinary industrial operations. Apparently, considerable advances have been made in the Dalic Process for brush plating developed by the Dalic laboratories in France and described by M. Rubinstein in "Materials And Methods," *40*, No. 6, 98. As is shown in Figs. 1, 2, and 3, the process has evidently graduated from the home workshop in France.

According to Mr. Rubinstein, the success of the Dalic process can be ascribed to the development of special electrolytic solutions particularly adapted to brush plating and of efficient styluses or "brushes." The deposits are said to be extremely adherent without the use of special etching procedures even when plating directly on aluminum or stainless steel, and also are claimed to be excep-

Dr. Seymour Senderoff
Supervisory Chemist,
Electrodeposition Section
National Bureau of Standards

A Monthly Digest of Current Technical Progress Indicating Significant Trends and Developments in the Finishing Industry

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CHEMICALS ACP PROCESSES

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Fig. 1—French company restores and hard surfaces the worn edges of a cookie cutting die by brush plating method, using a cap-type stylus.

tionally pore-free. These are considered to be largely an effect of the abrading action of the stylus on the base metal and on the plate as it is being formed. The deposits are usually harder than those obtained by bath plating, except for chromium, which is somewhat softer. At present the deposits are bright only in coatings of 0.0005 inch or less; the thicker dull coatings, however, can be polished. In Table I some information on the properties of the solutions and characteristics of the deposits produced by the Dalic Process is presented.

The Dalic solutions are highly concentrated solutions of metallo-organic compounds which contain alcohols and wetting agents. They are designed to operate at boiling temperatures and high current densities, and are said to be neither toxic nor irritating to the skin. Although several of the solutions are made in either acid or alkaline com-

Fig. 2—Worn areas on an aircraft propeller being refinished with zinc at the Air France repair depot with a drip-fed roller-type stylus. Self-contained rectifier is in background.

Fig. 3—Rotating slowly on a lathe, a worn shaft is being built up using a plug-type stylus wrapped in cotton, at the Somua plant, French manufacturer of heavy equipment.

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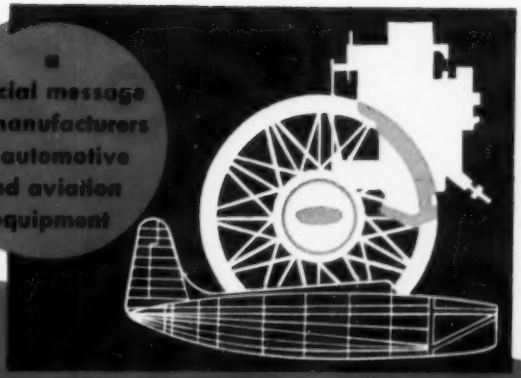

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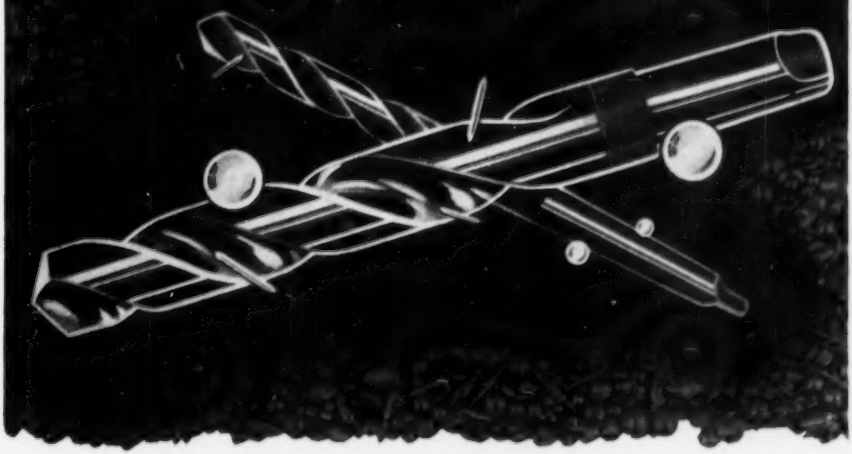
Table I
CHARACTERISTICS OF DALIC PROCESS SOLUTIONS AND DEPOSITS

Metal or Solution	Properties of Solutions						Characteristics of Deposits				
	Current Density, Amp/ft²			Approx. Metal Content oz/gal	Avg. Time to Deposit 0.001 in., sec.[c]	Avg. Thickness in 1 min., 0.001 in.[c]	Brinell Hardness	Melting Point °F	Elect. Res., per cm —4 °F	Density g/cm³	Present Limiting Thickness, mils
	Conventional baths	Dalic Solutions									
		As	Bb								
Bismuth	—	700	1400	—	76.2	0.79	50[e]	520	115	9.8	3
Cadmium	10-50	900	5600	27	25.4	2.4	40[e]	610	7.7	8.7	f
Chromium	100-400	1900	3700	11	635	0.095	600	3490	14	7	4.0
Cobalt	—	700	1400	—	76.2	0.79	250	2695	9.7	8.7	5
Copper	25-250	900	5600	9.5	25.4	2.4	150	1980	1.6	8.9	f
Gallium	None	500	900	—	178	0.34	—	85	50	6	g
Germanium	—	1900	3700	—	—	—	—	1760	(300)	5.5	0.1
Gold	2-50	300	1900	12[d]	76.2	0.79	100[e]	1940	2.4	19.3	f
Indium	20-100	900	3700	—	25.4	2.4	1	305	8	7.3	f
Iron	20-200	900	2800	—	102	0.59	175	2790	10	7.8	1.5
Lead	5-80	900	4700	—	25-51	1.6	20[e]	625	19	11.3	f
Nickel	10-100	1200	4700	13	50.8	1.2	500	2645	6.7	8.9	5
Palladium	10	300	1400	—	102	0.59	150	2825	11	11.9	—
Platinum	10-120	900	2800	4.9[d]	178	0.34	200	3220	10.5	21.4	5
Rhodium	10-80	1400	2800	2.4[d]	1020	0.059	500	3565	5	12.4	1
Silver	5-100	700	1200	34[d]	50.8	1.2	60	1760	1.6	10.5	f
Thallium	—	1400	1900	—	102	0.59	—	575	17	12	f
Tin	30-400	1400	4700	9.5	25.4	2.4	1[e]	445	13	7.3	15
Zinc	5-100	900	2800	13	25-51	1.6	70[e]	785	6	7.1	f

NOTES:
- a Not cooled or slightly air-cooled
- b Water—or refrigerant-cooled anode
- c Over an area equal to that of the contact pad of the anode
- d Troy oz. per gal.
- e Approximate value
- f Infinite
- g No metallurgical limit, but tends to run at appreciable thickness

in BURNISHING MATERIALS



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positions for particular purposes, in general the solutions are relatively neutral, ranging in pH from 3.0 to 8.5. The cathode current efficiencies are said to be high, with the copper solution operating at 100 per cent efficiency, silver and lead at 98 per cent, and chromium between 30 and 35 per cent efficiency based on the trivalent chromium ion.

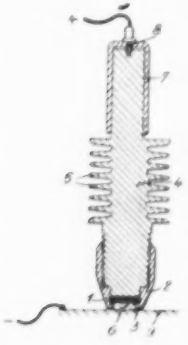

Fig. 4—Details of the cap-type stylus.

Fig. 5—Cooled and uncooled forms of plug-type stylus. Also shown are some threaded carbon plugs for use with this type of stylus.

Equipment and Operation. Three types of styluses have been developed for use with the process: the cap, plug, and roller types. In the cap type (Fig. 4) a carbon disc (1) is held in place by the seat (3) of an insulating plastic cap (2). The aluminum core (4) provided with cool-

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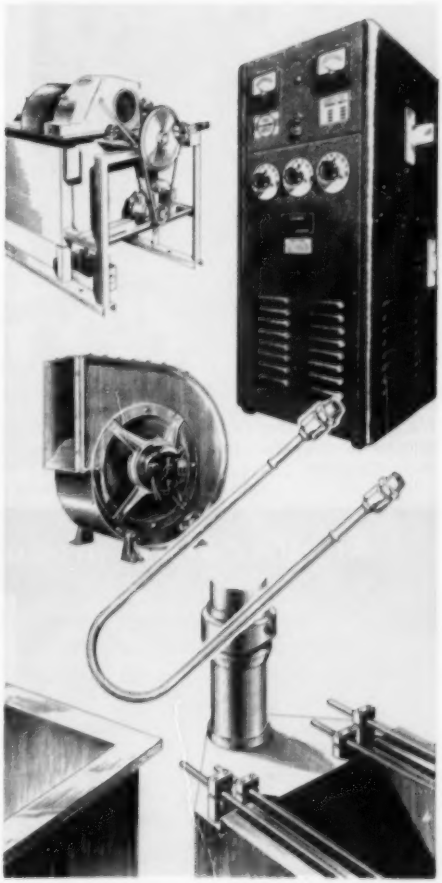

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Fig. 6—The water-cooled roller-type stylus eliminates dipping. (Photos courtesy Dalic Meta-Chemical Ltd. and Marvin Rubinstein.)

ing ribs (5) screws into the cap. The cotton pad (6) which holds the plating solution is held in place between the seat and the carbon plug. The aluminum core is coated with an insulating material (7), and has a socket (8) to receive the positive lead from a rectifier. The work (9) is connected to the negative lead.

The plug type stylus is shown in Fig. 5. Those with the cooling fins will handle up to 15 amperes while those without provision for cooling are limited to about 2 or 3 amperes. They are used by wrapping cotton wool around the carbon plugs which are obtainable in various sizes and shapes.

The roller type stylus is illustrated in Fig. 6. Here, cooling water enters at the inlet near the top of the handle, passes through the roller and

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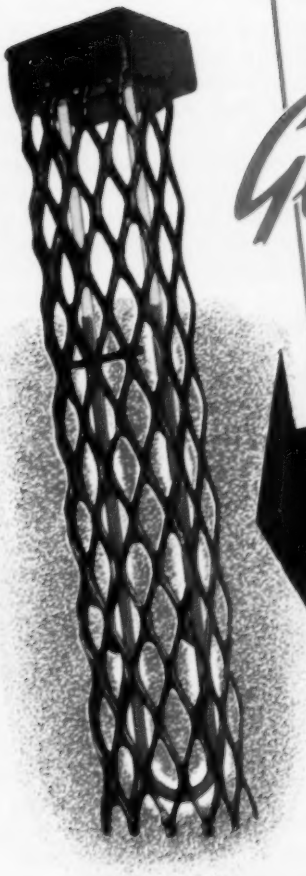

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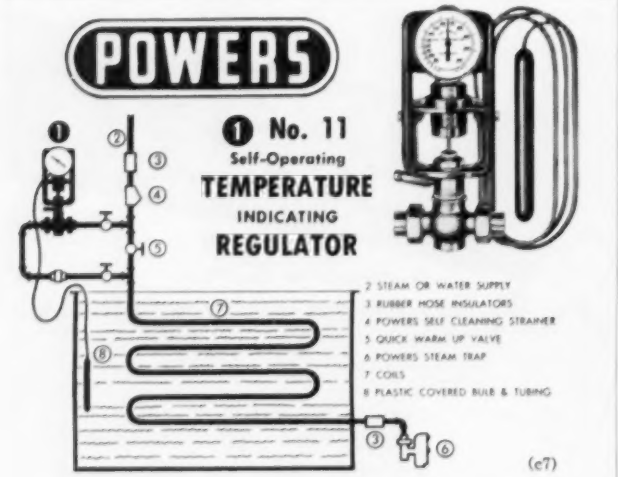
comes out near the top of the other handle. The third tube over the center of the roller is a drip-feed mechanism which eliminates the need for dipping the stylus in the electrolyte. The carbon roller is wrapped in cotton wool.

Parts are prepared for plating by first removing rust by any conventional method. Aluminum or stainless steel parts may also require mild abrading. The parts are then cleaned with the Dalic electrocleaner, the same solution being used for both ferrous and non-ferrous metals, rinsed, and plated. The type and size of stylus to be used is determined by the part to be plated. The conditions for deposition are those indicated in Table I. Styluses which do not have a drip-feed mechanism must be periodically dipped into the electrolyte which is held in a small porcelain dish. The part may be slowly moved under the stylus, or the stylus moved over the part.



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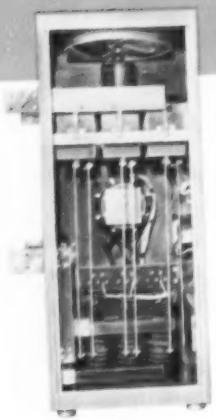

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For further information on H-VW-M Germanium Rectifiers, ask for Bulletin GR-100.

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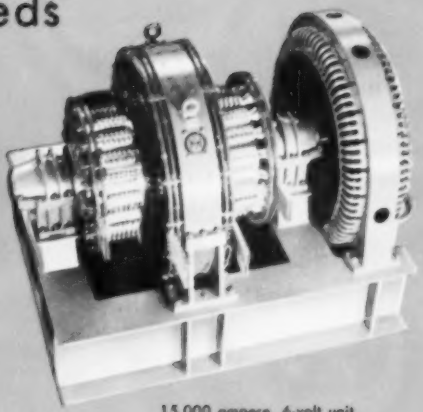


15,000 ampere, 6-volt unit

H-VW-M Motor Generator Sets not only *meet* specifications . . . but continually make *new* standards for voltage regulation, power factor correction, overload capacity, and exceptionally long and efficient life. H-VW-M Generators are built *to prevent selective action* and are *guaranteed* to be correct both mechanically and electrically. These precision-built producers of low-voltage direct current are available in a full range of sizes for every power need in electroplating and allied processes. Standard voltage ratings: 6, 9, 12, 15, 18, 25, 30, 40 and 50 volts. H-VW-M Generator Sets have *all* these outstanding advantages for the most economical production of current for metal finishing operations—

BRUSHES—COPPER GRAPHITE CONSTRUCTION—by using only flaked copper particles, ball-mill hammered, all H-VW-M brushes have a special grain structure which presents a minimum of resistance in the direction of useful current flow while offering *four times the resistance* to parasitical circulating currents.

MOLDED-IN SHUNTS—Specially-calibrated cables are molded into permanent and indestructible low-loss electrical contact with the body of the brush.

EQUALOAD SHUNTS—*prevent selective action.* By taking advantage of the thermo-electrical characteristics of a special alloy, closely calibrated H-VW-M Equaload shunts *automatically* regulate current flow, equalize current distribution, prevent brush overloads, cure selective commutation.

BRUSH HOLDERS AND RIGGING—Brush holders of one-piece cast bronze, accurately broached for proper brush fit, are rigidly supported and insulated from the electrical circuit.

Plated-steel torsion springs apply pressure to brushes through bronze fingers and no current can flow through the *springs* or the fingers to destroy their effectiveness.

BRUSH HOLDER SUPPORTS—Brush holders are supported from one end, allowing the maximum degree of accessibility to the commutator surface for cooling and maintenance. Provisions are made for radial brush holder adjustment after years of commutator wear.

COMMUTATOR RISERS—Designed to give fan action, risers provide more than adequate ventilation for commutator and field coils.

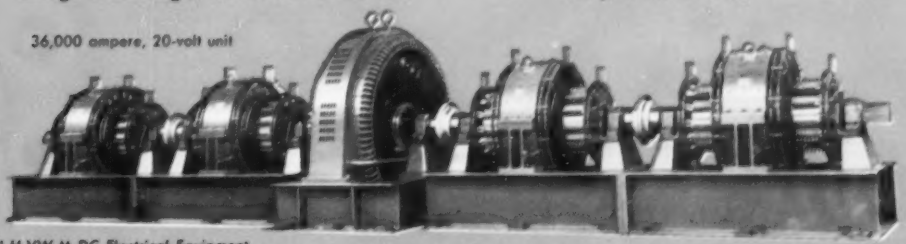
ROLLED-STEEL RING SET WITHIN FRAME—Provides a firmer base, minimizes vibration by lowering center of gravity of entire generator.

SLEEVE BEARINGS—Liberal size, sleeve-type bearings guarantee long, trouble-free life and quiet operation. Split construction used in larger sizes.

ROLLED-STEEL RING—Provides a more efficient conductor of magnetic flux than *any* casting.

For complete information on H-VW-M Generators ask for Bulletin G-103.

36,000 ampere, 20-volt unit



All H-VW-M DC Electrical Equipment is a result of

PLATEMANSHIP

H-VW-M's unique combination of: the most modern and complete laboratory for testing and development . . . the ability to provide complete equipment and supplies for every plating and polishing need . . . the complete background of knowledge and experience in every aspect of plating, polishing, cleaning and anodizing.

AND FOR OTHER DC APPLICATIONS...

Type "R"

H-VW-M PR CONTROLLERS—for periodic reversal of direct current for the H-VW-M PR and Wes-X Bright Copper Process and similar processes.

Type "R"—for reversing fields of a single generator.

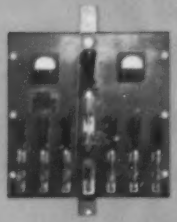
Type "RM"—for reversing fields of 2 or 3 generators simultaneously.

Type "RS"—a sub-controller, same Type "RM" except no timers.

Type "RL"—for line reversal with rectifiers or single tanks on branch circuits.

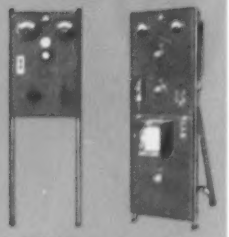
Write for complete information.

Type "RMH"
(special heavy duty Type "RM")



H-VW-M TANK RHEOSTATS—Furnish desired current density for plating by introducing a definite voltage drop between main lines and tank rods to produce the required voltage between anode and cathode. Standard ampere ratings from 50 to 1000 amperes (larger sizes to 5000 amperes on special order). *Ask for Bulletin TRA-527.*

H-VW-M CARBON PILE RHEOSTATS—For precise stepless control on DC circuits. Rated from 25 to 250 amps. on continuous service; resistance range up to 50 to 1. *Ask for Bulletin CPR-100.*



Standard Generator Control Panel

Automatic Anodizing Control Panel

H-VW-M SPECIAL PANELS—Standard control equipment includes: DC Voltmeter; DC Ammeter with separate shunt; generator field rheostat; exciter field rheostat (or resistor); DPST field switch with discharge resistance (when required); start-stop push-button station for motor starter; motor field resistor and motor field ammeter (on synch. motor-driven sets only). Full line of auxiliary equipment available. *Send for Bulletin G-105.*

H-VW-M UNIVERSAL CARBON PILE TANK RHEOSTATS—Combine stepless, infinite control characteristics of carbon pile rheostat with adjustable nickel-chromium resistor. Combination provides ALL tank voltages for a specified line voltage and maximum amperage condition. *Send for Bulletin CPR-200.*

A COMPLETE LINE OF *Engineered* ELECTROPLATING AND POLISHING PROCESSES, EQUIPMENT & SUPPLIES

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Abrasives
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Barrels, Plating
Barrels, (Portable Burnisher and Dryers)
Basket, Scrap Anode
Baskets, Dipping
Brighteners, Addition Agents
Brushes
Brush Units (Helical)
Buffs
Cathode Rackers
Chemicals, Plating
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Chrom-flo Anodes
Cleaners—and Solvents
Compounds
Conveyors, Full Automatic
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Conveyors, Skip-Stop
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Crocks, Earthenware
Degreasing Solvents
Dryers
Exhaust Fans
Filters
Felt
Fluxes
Generators
Gloves, Platers'
Glue, Belgrade
Heaters
Heating Coils
Hose
Insulating Steam Joints
Klinch Grain Cement & Thinner
Kote-Masq
Kote-Rax, Grade M
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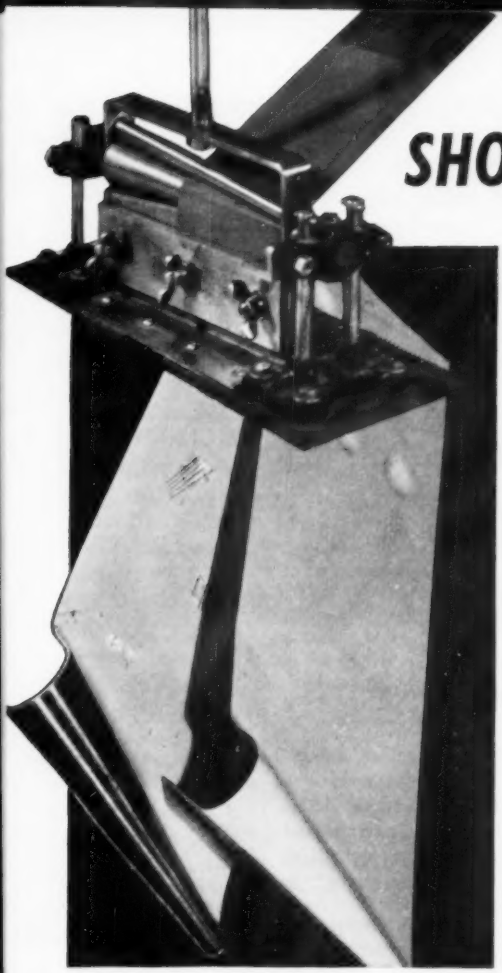


SHOCK TREATMENT

..bad medicine for the wrong finish

The conical mandrel test evaluates the flexibility and adhesion of paint on metal surfaces by severely bending and stretching a painted metal panel between conical rollers. Lowe Brothers FEUZON—baking enamel used on the right hand panel withstood this abuse without peeling, breaking or cracking. The competitive enamel on the other panel, could not stand this abuse.

You can't afford to use anything but the right finish. The second best might be cheaper and look just as good, but it will be more costly in the long run.

The "shock" will come after your product goes into home, office or plant. The finish must not only look good but also be able to take wear and abuse.

The "shock treatment," more severe than any encountered in actual service, is simulated in Lowe Brothers Technical Service Laboratory to determine in advance the reliability of each finish. The two test panels at the left which have been bent and stretched, graphically emphasize that the best paint is the most economical finish in the long run.

To make sure you get the right finish everytime, call or write Lowe Brothers Company, 424 East Third Street, Dayton 2, Ohio.

LOWE BROTHERS

INDUSTRIAL FINISHES

also Style-Tested paints for the home

For more data circle 146 on Reader Service Card

surfaces. This has found use in the manufacture of vacuum tubes.

(7) Strip and wire plating—This has been accomplished with the Dalic process by passing the strip or wire over a series of sponges on styluses each of which performs a cleaning, pickling, or plating operation as required. Drip-fed styluses are used.

Many other possible uses are indicated by the author who also states that the process is not a replacement for ordinary plating, but rather, that it is an additional tool available to the plater. Mr. Rubinstein's evaluation of the process is best indicated by the title of his article, i.e. "Brush Plating Now Practical."

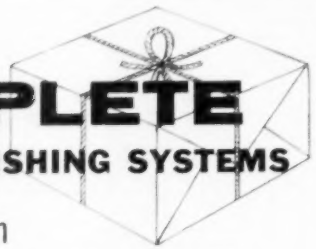
Editor's Note: The Dalic Process is now available from the Dalic Meta-Chemical Ltd., 121 Leicester Ave., Ontario 18, Canada, and the Marlane Development Co., Inc., 153 E. 26th St., New York 10, New York.

★ ★ ★

THE SAE STORY. Commemmorating the 50th Anniversary of its founding, in 1905, the **Society of Automotive Engineers**, 29 W. 39th St., New York 18, N. Y., has published a history of the organization entitled "The SAE Story."

Beginning with the editorial in a 1902 issue of "Horseless Age," which pointed out the need for a "Society of Automobile Engineers," the history traces the highspots of the SAE's past from its start to its Golden Anniversary in 1955.

CALL HOFFMAN



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assured performance on

metal parts cleaning—surface treating—painting or plating

If your plant needs a *dependable* mechanized or automatic finishing system to deliver full scale production . . . engineered and installed with minimum complication, to operate with maximum efficiency—then call in HOFFMAN engineers.

Whether it's a single stage manual unit—a multistage conveyor sequence of wash-pickle-chromic acid sprays—an automatic air-operated immersion process—or an electrostatic paint or enamel system . . . HOFFMAN systems are engineered to meet every requirement.

And Hoffman does the *whole* job—*all the way!* From specifications and blueprints through equipment fabrication and assembly to a working installation on assured production basis, you know one firm is responsible for everything! So call in the Hoffman engineer—to answer all your finishing problems.

METAL FINISHING DIVISION

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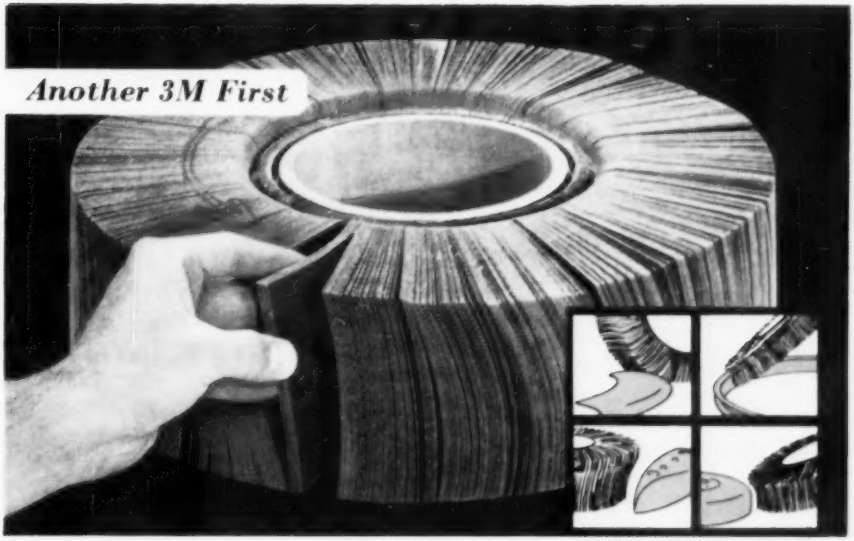
For more data circle **147** on Reader Service Card



Now! 3M Introduces the "PG" Wheel

Obsoletes all other known methods for polishing and buffing contoured and flat surfaces prior to plating, painting or developing architectural finishes

The amazing new "PG" Wheel is a revolutionary new concept in coated abrasives application—the most significant development in the polishing field in the last 15 years. It reduces costs, increases production, improves finishes.

The "PG" Wheel—formed of over 1000 segments of cloth-backed 3M Coated Abrasive—is *self-conforming* and retains its shape throughout its working life. It requires *no* "breaking in" or dressing. It performs *all* the jobs formerly done by such methods as set-up wheels, sisal buffs, and rag buffs, yet also removes stock, if desired — features which no other coated abrasive on the market today can equal.

Installations in many plants have demonstrated that its production life is almost unbelievable. For example, in one plant a "PG" Wheel lasted 35 *hours* compared to a maximum of *15 to 20 minutes* for set-up wheels performing the same operation. At this same installation, where several "PG" Wheels, turning at different RPM's were tested, the *lowest* "PG" Wheel life was 13 hours.

For case history reports on the "PG" Wheel, write today to Minnesota Mining and Mfg. Co., Dept. 1-125, St. Paul 6, Minn.

3M ABRASIVES

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For more data circle **148** on Reader Service Card

Page 68

Practical Applications of Modern Products

Butyrate Coating Proves Successful in Protecting Aluminum

AN EXPENSIVE MAINTENANCE PROBLEM for users of aluminum-fabricated equipment seems on the way to solution. A long-life protective coating that is said to protect aluminum surfaces despite hard winds, heavy weather and corrosive attack, has reached the market after 16 months of "in use" tests.

The product is a clear, water-white, weather-resistant, protective coating called "Clear Coating-CH64." It is ap-

Fig. 1—Men prepare surface of new trailer just off the production line at Brown Trailers, Inc. Surface was thoroughly cleaned by a solvent. Trailer was then ready for clear coating.

plied by usual spray methods, with standard spray equipment. The coating dries at room temperature in 10 to 15 minutes to give a satin-smooth finish. No baking or other finishing techniques are required. The aluminum product is ready at once for outdoor use.

The problem, to put it simply, has been this: bare aluminum, when exposed to the elements, is subject to corrosion, pitting and dulling.

Some time ago, the Egyptian Lacquer Manufacturing Company of South Kearny, N. J., and Lafayette, Ind., approached Eastman Chemical Products, Inc., of Kingsport, Tenn., suggesting that the two companies pool their knowhow in order to develop an easily appliable, long-life lacquer for outdoor aluminum surfaces. Eastman agreed, and together the two firms worked out a number of formulations. That formulation which showed the most promise in controlled panel tests was then used in actual performance tests.

It was well known that a maintenance problem existed in the trailer-truck industry. So, together, representatives of the two firms called on one of the largest trucking concerns in the South, The Mason & Dixon Lines, Inc., with headquarters and large terminal facilities in Kingsport.

They verified there the considerable cost of aluminum truck and trailer maintenance. Anything that could help get the trailers out on the road faster was of definite interest to Mason & Dixon and, therefore, they were pleased to make their facilities available.

In order to show differences readily, isolated sections of a new trailer were sprayed while other sections were left bare to the weather. The coated sections were those known to be subject to discoloration and pitting.

That first truck was treated 16 months ago. It is still in good condition at the points where the butyrate

Fig. 2—Butyrate lacquer is applied to aluminum surfaces. The coating flows freely, falls evenly over surface in skin-thin protective layer. Note that operation requires no masking.

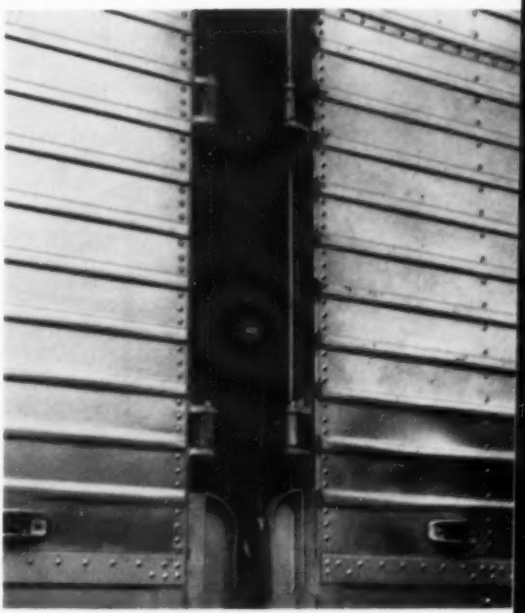

Fig. 3—Corroded trailer finish (right) contrasts with clear finish of coated trailer (left).

coating was applied (Fig. 4). Where the aluminum was left bare, however, the usual pitting of the surface shows quite plainly. The truck itself still is on the road, performing day in, day out, the aluminum bright underneath the coating.

This was proof that the coating protects the aluminum surface against the abrasive action of sand and gravel, the corrosive action of road salt and strong detergents, and itself withstands the deteriorating influence of the weather, including rapid temperature changes, and extremes of heat and cold.

Based on this favorable experience, Eastman and Egyptian Lacquer approached Mason & Dixon with the suggestion that one trailer of a large quantity then on order at Brown Trailers, Inc., of Reading, Pa., be completely coated with the butyrate protective lacquer. Another trailer, without the protective coating, was to be delivered at the same time. The trucks would be sent out on the road to work a normal routine, records to be kept on them, both the coated and the uncoated, then both would be brought into the shop for examination. Mason & Dixon agreed and so instructed Brown Trailers.

Fig. 4—Rear of truck shows dramatic differences in condition of coated as against uncoated portions. Surface is pitted and corroded everywhere but at point where half-second butyrate formulation was applied for surface protection. (Photos courtesy Eastman Chemical Products, Incorporated, New York, N. Y.

To ensure maximum adhesion, shopmen at Brown first gave the surface of the trailers a solvent wash (Fig. 1) to remove all traces of foreign matter. No prime coat was needed, and one application (Fig. 2) of the new lacquer was sufficient. The trucks were delivered. Both were sent out on the road and, 60 days later, were brought into Mason & Dixon's Kingsport terminal. Each trailer had traveled over 10,000 miles during the test period.

The coating showed excellent adhesion; the lacquer retained its water-white characteristics throughout the period of exposure.

The trucks were washed and it was evident that aluminum panels of the uncoated truck, exposed to corrosion and attack by road- and air-borne dirt and grit, had already begun to show the first signs of deterioration (Fig. 3).

As for the maintenance job itself, it took less time to wash down the butyrate-coated trailer. Moreover, less effort with the brush was needed to bring up the characteristic satin-smooth finish of the coated trailer.

For more data circle 1 on Reader Service Card

★ ★ ★

Vacuum Cleaner Parts Washed Automatically

LEWYT CORPORATION solved the problem of cleaning metal parts for vacuum cleaners by installing a huge automatic washing machine. Attempts at hand-washing the parts in baskets slowed down production, increased costs, and wasted valuable production

space. Today as many as 43,000 parts per hour can be cleaned. The Industrial washing machine is a four stage operation: (1) water washing, (2) phosphate coating, (3) water rinsing, (4) drying. Water is recirculated through the equipment at the rate of 193,000 gallons per hour. More than 5,000 cubic feet of air per minute are recirculated in the hot air dryer.

Industrial Systems Company of Matawan, N. J., designed and installed the equipment.

For more data circle 2 on Reader Service Card

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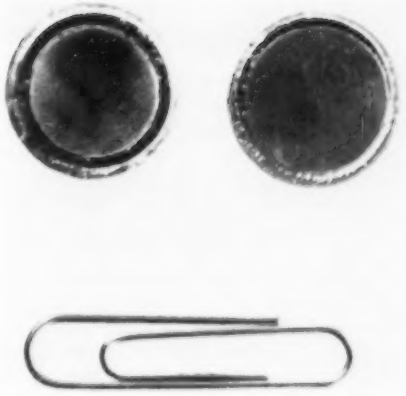

Fig. 1—Photo above shows size comparison of germanium rectifier cells and paper clip.

Germanium—Electroplater's Hidden Treasure

By J. E. PIMENTAL

Product Planning, Rectifier Department
General Electric Company, Lynn, Mass.

SHOULD I BUY GERMANIUM or shouldn't I? What are its advantages and what are its limitations? The answer to these questions is the hidden part of this treasure. By explaining what germanium is, how it fits into the plating picture, its advantages and its limitations, I believe we will then be able to call germanium, "The Electroplater's Treasure."

Figure 1 shows a germanium cell. When properly secured to a cooling element, this piece of metal will deliver 75 amperes d.c. at as high as 65 volts d.c. Figure 2 shows a cell mounted on cooling fins, and Figure 3 shows a complete plating rectifier.

The objective in making a good rectifier is to make a cell which has a very high reverse resistance. This will limit the leakage current. The forward resistance should be as low as possible because low forward means high efficiency. Of course, it's also desirable to make a rectifier that will not deteriorate with use. Germanium seems to be the answer to all of these objectives. Germanium cells have efficiencies as high as 98 per cent.

Now let us see how this germanium cell fits into the plating picture.

The heart of the plating rectifier is the cells. This is where the alternating current changes to d.c. If a metallic rectifier cell can be made that is just as reliable as an ordinary transformer, then the whole source of d.c. power can be made as reliable as an ordinary transformer, a static device. A properly designed germanium rectifier is just as reliable as an ordinary transformer.

The three main advantages of germanium are efficiency, long life, and minimum maintenance.

Figure 4 shows the efficiency of a conventional germanium rectifier at various output voltages. These figures are based on a transformer efficiency of 96 per cent, which is common in a good design.

The next advantage of germanium is long life. In the short time that the physicists have been studying germanium, they have learned more about

metallic rectifiers than was known up until the introduction of germanium. Over 30,000 hours of continuous life tests by the General Electric Company have confirmed the physicists' belief that germanium has long life.

It cannot be said that anyone who manufactures a germanium cell will have a cell that will not deteriorate and fail. The manufacturing techniques and controls are very important. Testing of the cells under various temperature conditions is also important. The mass of the germanium cell is so small that means of removing the little heat that is generated in the cell must be provided. Only experience in design, manufacturing, and proper testing techniques can ensure the unlimited life of a germanium rectifier.

The third main advantage of germanium is minimum maintenance. Since a metallic rectifier is a static device it is only natural to expect that maintenance would be negligible. Twenty-four hours a day, 7 days a week, operation is fine. As far as germanium is concerned, it makes no difference if the equipment is operated 12 or 24 hours a day.

The last five years have brought more advantages in power supplies for plating than has occurred in the previous 25 years. Future development will be along the lines of assuring dependable and accurate operation, less maintenance, and lower initial cost. Only by carefully analyzing the various equipments offered will you ensure that proper attention is given to the continuing development of better power supplies for electroplating.

Cooling fin-mounted germanium cell.

Fig. 3—Air-cooled hermetically sealed germanium rectifier features efficient operation.

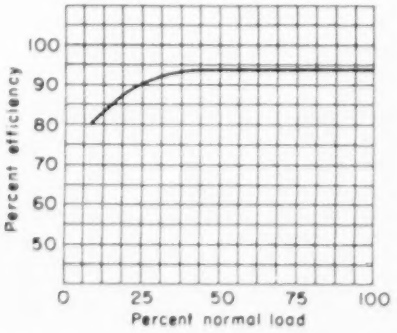

Fig. 4—Per cent efficiency of germanium rectifier at various output voltages. These figures are based on transformer efficiency of 96 per cent. (Photographs courtesy the General Electric Company, Schenectady 5, New York.)

Adapted for publication in PRODUCTS FINISHING from a paper presented before The St. Louis Branch, American Electroplaters' Society.

For more data circle **3** on Reader Service Card

These Manufacturers Have Proved the DEPENDABILITY of

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Engineered

FINISHING SYSTEMS

Space does not permit us to show or even list the hundreds of satisfied users of DESPATCH Engineered Finishing Systems who have proved their dependability with increased production and improved quality, however, the four shown are typical examples.

DESPATCH FINISHING SYSTEMS are designed and built to finish your product better, faster and more economically. They are engineered to fit your particular requirements. You can get a complete system or individual units, such as—

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For More Information Write For Bulletin 51C

DESPATCH OVEN COMPANY
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Coco Steel Products Corp., Chicago, washes, paints, finish-bakes airplane landing mats on a stepped-up schedule with this DESPATCH Finishing System.

PIONEERS IN ENGINEERING HEAT APPLICATIONS FOR INDUSTRY

For more data circle 149 on Reader Service Card

Mixing Machine Manufacturer Speeds Operation With Infra-Red Tunnel

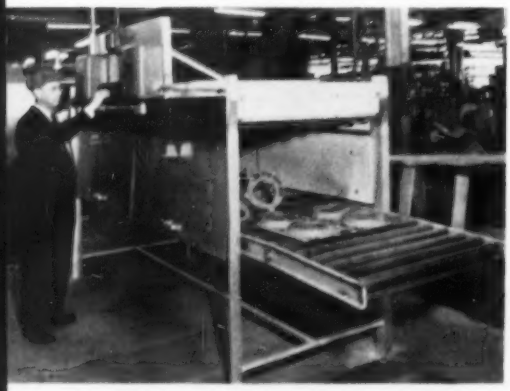
A PROBLEM frequently encountered in paint baking operations is that of supplying adequate heat to penetrate thick, heavy metal sections on a par with the time required for thinner and lighter parts. A flexible heating system is required to provide sufficient heat intensity while giving accurate, responsive control as required by the changing nature of the work. Since paint colors vary widely in their heat absorbing properties, the heat source should be capable of baking both light and dark colors at nearly equal speed.

An example of such a problem was found at a mixing machine manufacturer's plant where work varies from light sheet metal parts to heavy brass castings, and paint colors range from white to dark brown. Much has been done to alleviate the difficulties encountered in this particular finishing operation by installing a far-infra-red electric tunnel containing 6 Chromalox electric radiant panels with an installed capacity of 64.8 kilowatts. The tunnel is divided into two heat zones, each containing three panels. Each zone is regulated by a separate input controller and magnetic contactor.

With this system, all parts are baked rapidly. In addition, all paint colors are handled at about the same rate, and any temperature adjustments that are necessary can be made with the two zone control system. The conveyor height can also be adjusted to bring the work closer to the heaters so that paint baking time can be reduced to less than 1½ hr., specifications permitting.

The installation was constructed from readily available components. The panels, which are completely packaged units with built-in insulation and bus bars, were mounted on simple angle iron framing to form the top of the tunnel. For additional insulation, a corrugated aluminum reflector was located beneath the roller conveyor, and asbestos padding was attached to steel sheeting to form the side walls. A 6 inch space is left open between the two panel zones to exhaust paint volatiles.

For more data circle 4 on Reader Service Card



Infra-red tunnel bakes mixing machine parts. Note separate input controllers for individual zones within the baking oven.

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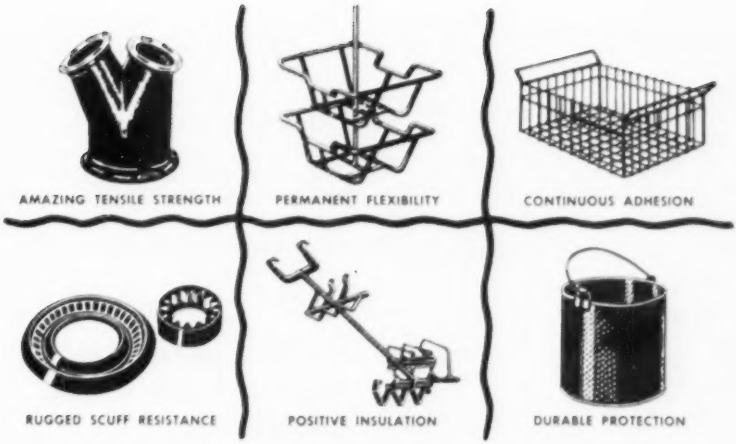
Chemical Rubber Proves Usefulness in Chromic Acid Transfer

EXCELLENT RESISTANCE to strong oxidizing acids and other chemicals has been demonstrated by a hose featuring a tube of "Hypalon" chemical rubber.

While the hose has seen only a limited variety of service, "Hypalon" itself has an established record of resistance to a great many rubber-deteriorating chemicals and conditions. It also offers complete resistance to ozone attack, and retains its properties even after ex-



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THEY'RE MICCROSOL COATED

They Meet the Highest Industrial Standards

MICCROSOL E-1003 Heat-Cured Rack Coating is a 100% solids, non-evaporating material that produces a smooth, tough, leather-like coating which will often outlast the rack. Exceptional adhesion is achieved through the use of our primers.

In addition to the outstanding characteristics listed above, tests for abrasion and resistance to all commonly used plating solutions, acids, and caustics show superior performance in comparison to similar products. MICCROSOL E-1003 has proven to excell as a coating for materials handling equipment, baskets, hangers, and a wide variety of plating equipment parts.

MICCROSOL E-1003 has an exceptionally high gloss, allowing free drainage, and no solution carry-over.

We will be pleased to help you with your coating problems. Send us full particulars.

MICHIGAN CHROME
and Chemical Company

8615 Grinnell Avenue • Detroit 13, Michigan

For more data circle 150 on Reader Service Card

posure to temperatures as high as 300 deg. F. Since its introduction three years ago by the DuPont Company, the man-made rubber has found widening use in such applications as tank linings, decorative and protective coatings for metals, gaskets and hot materials conveyor belts.

Evidence of its durability is the way the hose has performed in contact with chromic acid. Hilfinger Corporation, Toledo, Ohio, custom electroplaters, installed a length of this hose (product of Hewitt-Robins, Inc., Stamford, Conn.,) in October 1952. It is used about every three months to transfer chromic acid solution from the chromium plating machines to storage tanks, so that sludge accumulations can be removed from the plating units.

The hose is in constant contact with acid during the entire two-day cleaning operation. It doesn't get flushed out until the 4,400 gallons of acid have been returned to the plating machine.

Solution temperature runs about 105 deg. F., and concentration is 40 per cent chromic acid by weight.

After 30 months, the hose shows no cracks or other signs of deterioration. Equally good results are reported after two years service in sulfuric acid at a concentration of 98 per cent H_2SO_4.

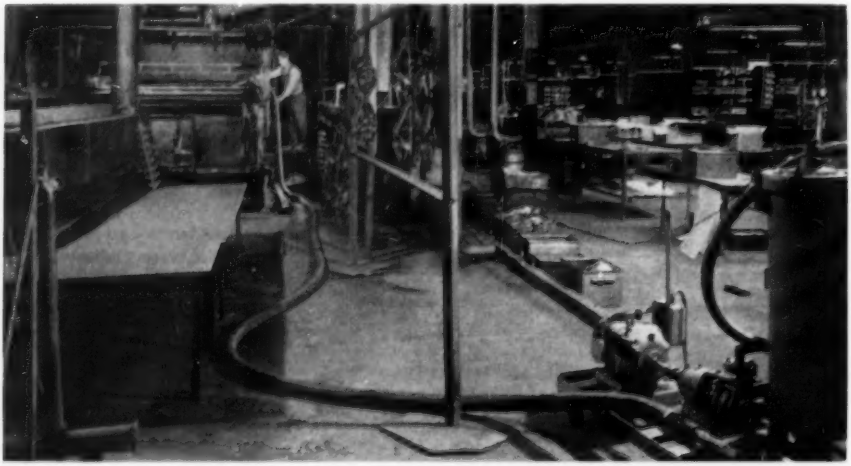
For more data circle 5 on Reader Service Card

★ ★ ★

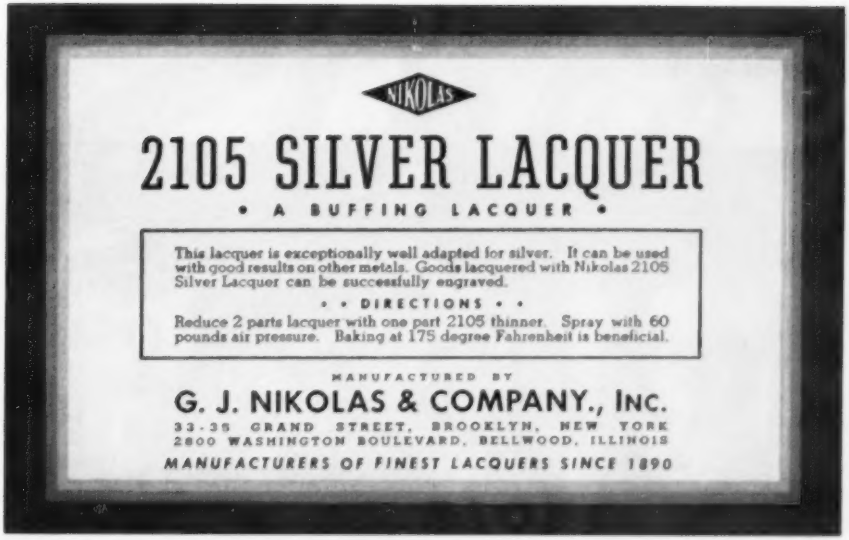
Airless Spray Used to Paint Electrical Equipment

By K. C. MANWARING
Duquesne Light Co., Pittsburgh, Pa.

THE BEDE AIRLESS SPRAY coating process has aided considerably in upping the efficiency of finishing processes at the Duquesne Light Company, Pittsburgh, Pa. This type of finishing has been employed extensively for production line operations as well as main-



Acid hose being used in electroplating plant to transfer chromic acid solution to storage tank so the plating unit can be cleaned. "Hypalon" tube is still in perfect shape after 2½ years.


NIKOLAS
2105 SILVER LACQUER
• A BUFFING LACQUER •
This lacquer is exceptionally well adapted for silver. It can be used with good results on other metals. Goods lacquered with Nikolas 2105 Silver Lacquer can be successfully engraved.
• • DIRECTIONS • •
Reduce 2 parts lacquer with one part 2105 thinner. Spray with 60 pounds air pressure. Baking at 175 degree Fahrenheit is beneficial.
MANUFACTURED BY
G. J. NIKOLAS & COMPANY., INC.
33-35 GRAND STREET, BROOKLYN, NEW YORK
2800 WASHINGTON BOULEVARD, BELLWOOD, ILLINOIS
MANUFACTURERS OF FINEST LACQUERS SINCE 1890

This Label is used for the finest clear lacquer yet produced for — Plated Goods — Silver Nitrate Films — Holloware — Cellulose Acetate Butyrate Plastic — Vaporized Metal Coatings — and many others.

- **Fast Drying**
- **Water White**
- **Crystal Clear**
- **Non-Discoloring**
- **Excellent Adhesion**
- **Mar-Resistant Hardness**

For Full Information, write —

G. J. NIKOLAS & CO., Inc.

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Painting Electrical Equipment with Airless Spray . . .

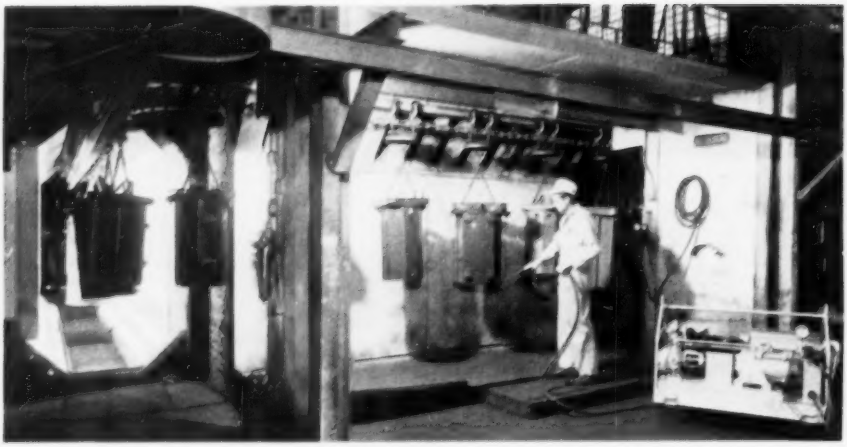


Fig. 1—Reconditioned tanks for distribution transformers pass through spray booth on overhead chain conveyor, and are painted by airless spray process. Tanks can be seen entering infra-red lamp heated oven at left of photograph, where paint is baked.

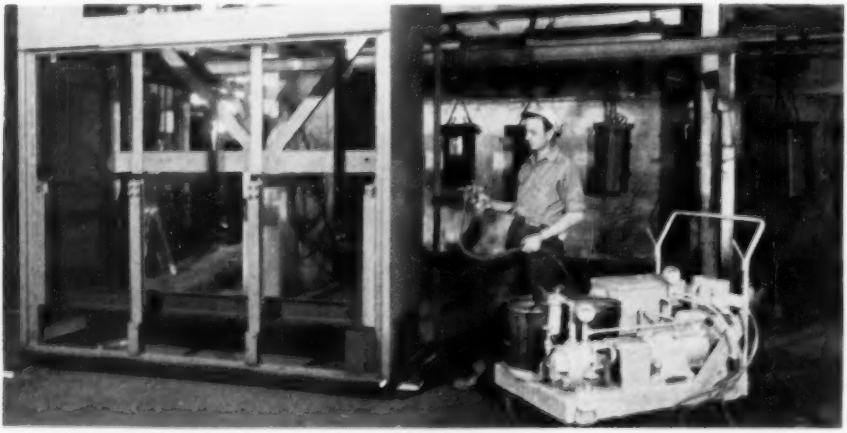
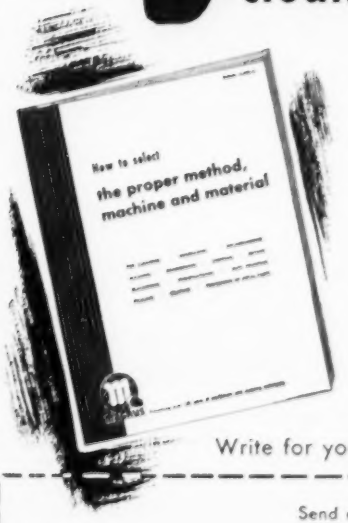


Fig. 2—Airless spraying is used in painting distribution center switchgear housing prior to installation. Note that painting outfit is mounted on cart, making it possible to use it in shop as well as in field. (Photos courtesy Bede Products Corporation, Subsidiary of U. S. Automatic Corporation, Amherst, Ohio, and Duquesne Light Company, Pittsburgh, Pa.)

Free

36 page illustrated cleaning methods manual



In these pages you'll find the answer to the proper method, the proper machine and the proper material for any cleaning operation. This manual analyzes basic cleaning techniques and provides a particular answer to your individual cleaning requirements, and covers such subjects as "Dip versus Spray", "The Importance of Mechanical Agitation in Cleaning," "Spray Dip Equipment" and many others.

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Industrial Cleaning Division

MAGNUS CHEMICAL CO., INC.

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For more data circle **152** on Reader Service Card

tenance spray painting in the field for approximately two years.

The process is used in painting such items as reconditioned tanks for distribution transformers, switchgear housings, and miscellaneous small pieces of equipment weighing up to 600 pounds.

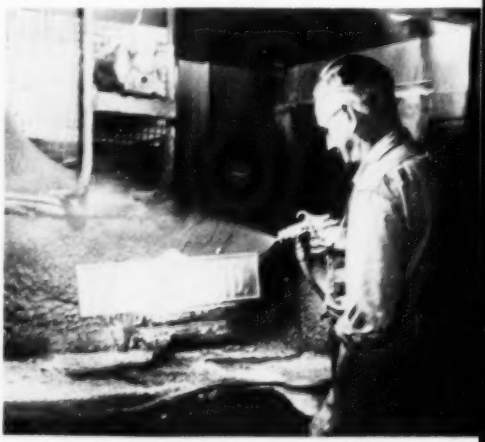
In practice, surfaces to be painted are first shot blasted until thoroughly cleaned of any rust scale, dirt or other loose material. Two coats of paint are then applied to the clean surface. The first is an iron oxide primer and the second an alkyd resin base enamel. A paint heater maintains temperature of the paint being supplied to the gun at 185 deg. F., and 550 pounds per square inch pump pressure is used to force paint through the nozzle. Thickness of the two coats averages 3½ to 4 mils. Very little overspray has been encountered since this method has been in use. Upon leaving the spray booth, parts being painted are carried by the conveyor into an infra-red lamp heated oven, where they are baked.

For more data circle **6** on Reader Service Card

★ ★ ★

Paint Coating Produces Durable Signs

CAST ALUMINUM SIGNS and markers, in use all over the world under all conditions of climate, must be painted correctly to remain highly visible and useful. Lake Shore Markers, Erie, Pa., manufacturer of signs and markers, solves the finishing problem by the use of Vinsynite as a combination metal treatment and primer on their products, following this with Thompson vinyl finishes specifically formulated for this use. Developed and supplied by Specialty Coatings, Inc., division of Thompson and Co., Oakmont, Pa., Vinsynite is a wash-primer type of coat-



Sign being sprayed with Vinsynite wash-primer. This treatment phosphatizes and deposits thin organic film, which inhibits corrosion.

Top Quality WOOD TANKS
begin with TOP-GRADE LUMBER . . .

Over 75 Years Tank Building Experience

. . . the quality of

***Kalamazoo* WOOD TANKS**

results from selected tank-grade lumber and craftsmanship care in construction. Send today for free estimates and suggestions.

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1233 HARRISON ST. • KALAMAZOO, MICH.
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Effective December 15, 1955

PRICES REDUCED UP TO 20%

Sel-Rex RECTIFIERS

New mass production techniques brought about by the increased demand for Sel-Rex Rectifiers have enabled us to reduce manufacturing costs. These savings are being passed on to you in new low prices for the entire line of Sel-Rex quality rectifiers.

This, despite the fact that higher prices for steel, copper, selenium and various components have forced all other rectifier manufacturers to increase prices. Now — you can own the standard of the industry for no more than it would cost you to buy an ordinary rectifier. You pay no premium for Sel-Rex superiority!

Send for your free copy of our illustrated 12 page "Guide to Better Plating Power," no obligation.

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Sel-Rex Rectifier Division
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Newark • Detroit • Los Angeles
Sel-Rex Rectifiers for every DC Power Conversion need — 25 to 50,000 amperes

For more data circle **154** on Reader Service Card

Example of sign painted by Lake Shore Markers

ing which in one application phosphatizes and deposits a thin organic film which forestalls corrosion and provides maximum adhesion for finish coats of paint. Vinsynite is used both for metal products finishing and for maintenance. Type AU-1 is formulated for use on aluminum or any other non-ferrous metals, and Type FS-2 for use on ferrous metals.

For more data circle **7** on Reader Service Card

★ ★ ★

Coating Process Increases Life of Buffing and Polishing Fixtures

FUSECOAT "T", a development of Fusion Metal Coating Co., Inc., Detroit 19, Mich., is a coating of tungsten carbide fusion bonded to a base metal by a hard alloy binder metal. The coating, varying in thickness from 0.005 to 0.025 inch, has been applied to steel polishing and buffing fixtures to protect against wear in service. Service life of the fixtures has been increased appreciably by this treatment.

It is now possible to fabricate the fixtures out of thinner steel than was formerly required, and economical hot or cold forming and welding methods can be employed to produce the fixture. The coating follows the shape or contour of the fixture uniformly so that finish grinding after treatment is not required.

The Fusecoat "T" process has been applied successfully for coating the following buffing and polishing fixtures or parts: buff fixtures of all kinds; screw heads for holding fixtures; rails for straight line polishing; headless nails for cleaning buffs; jaws and clamps for holding work; V-belt pulleys to eliminate wear in grooves; mixer blades, probes, and scrapers for gyro polishers.

Fusion Metal Coating Co. does not manufacture buffing and polishing fixtures. The company performs only the coating operation as outlined above.

For more data circle **8** on Reader Service Card

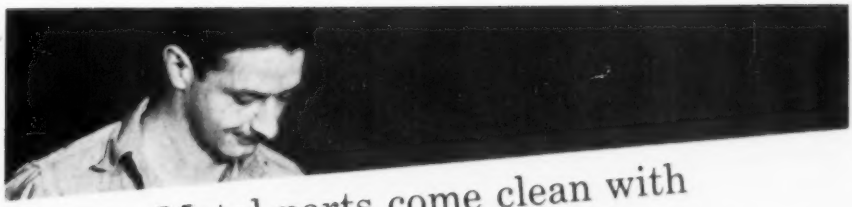
★ ★ ★

Compact Unit Dips and Bakes Metal Products Automatically

ONLY 42 SQUARE FEET of space are used by a recently installed unit which applies primer to handles of cutlery pieces, bakes and preheats them, applies a finish coat, bakes again, and delivers the finished product at the rate of 24 pieces per minute. Since the unit is loaded and unloaded at the same end, one operator handles both tasks.

This conveyorized dipping and baking setup is a "packaged" unit built and installed by the W. S. Rockwell Company, Fairfield, Conn. It consists of a horizontal conveyor, two movable dip tanks, and an oven. The cutlery pieces are suspended from horizontal parallel bars, which are attached to two strands of roller chain, and thus are carried through the machine.

In operation, the conveyor moves forward in its underpass to a point



Metal parts come clean with Nialk TRICHLORethylene

Highest Quality • Re-usable • Economical

Photograph courtesy The Kleer-Flo Co., New York, N. Y.

NIALK TRICHLORethylene is one of the most efficient of all metal cleaning and degreasing agents.

Characterized by a high degree of purity, uniform quality and chemical stability, NIALK TRICHLORethylene is recoverable for re-use. This, coupled with its greater efficiency, makes it doubly economical... assuring you greater cleaning power from every gallon you buy.

Send for free illustrated booklet, NIALK TRICHLORethylene, containing valuable data on the use and handling of this chemical.

NIAGARA ALKALI COMPANY

60 East 42nd Street, New York 17, N. Y.

Plant: Niagara Falls, N. Y.

For more data circle 155 on Reader Service Card

where the prime coat tank is raised (by an air operated cylinder, which is adjustable to various heights to accommodate different sized pieces) to permit dipping of the pieces on one bar. Simultaneously the tank at the other end of the oven is raised to dip the items on another bar with the finish coat. A timer indexes the conveyor so that the work is immersed in each tank for the same period of time. Between the tanks, (each of which is equipped with a recirculating pump) the pieces move through an oven, where the prime coat is baked and pieces are preheated for the final finish coating. After application of the finish coat, the bars move over a sprocket and return through the oven. Thus the finish coat is baked.

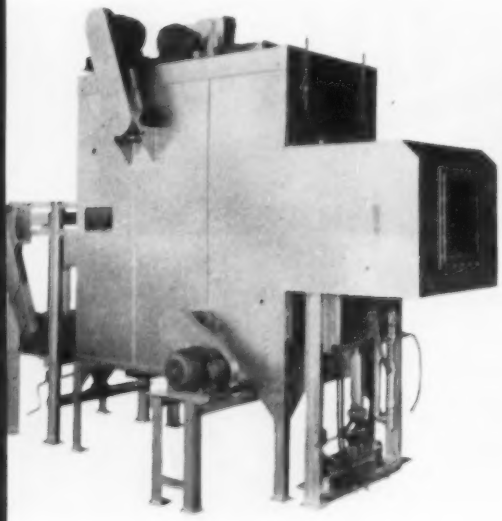
The oven is constructed of aluminized steel panels insulated with glass wool preformed blocks. Heat for the oven is supplied by two banks of electric heaters, one mounted under the conveyor and one above it, with motor driven fans recirculating the air. An exhaust fan removes volatiles from the oven. A pyrex glass panel in the hood at the end of the oven permits inspection of the work in progress. Indicating temperature controllers and air flow switches help assure safety.

For more data circle 9 on Reader Service Card

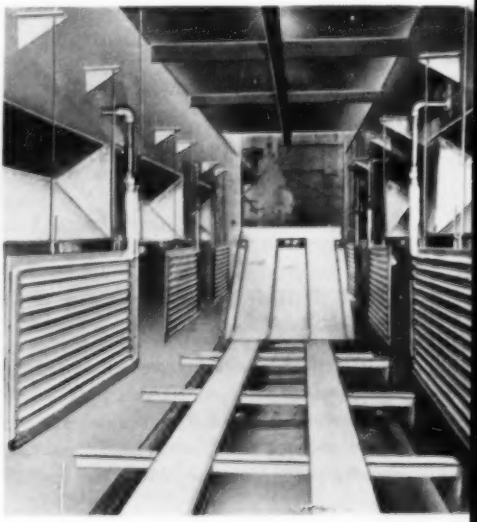
★ ★ ★

Space Saving Heat Transfer Unit Used on Phosphatizing Tank

CONSERVATION OF SPACE and efficient transfer of heat were among the principal reasons for using heat trans-

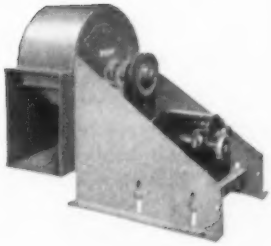


This compact unit primes, finish coats, and bakes articles of cutlery automatically. (Photo courtesy W. S. Rockwell Co., Fairfield, Conn.)



Flat, compact Platecoil heat transfer units installed in phosphatizing tank. (Photo courtesy Tranter Mfg. Co., Lansing, Mich.)

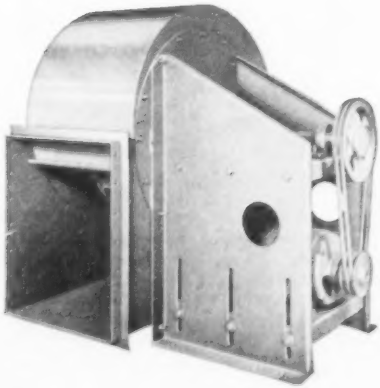
nyb



Nos. 76 and 91 Belted Junior Fan

GENERAL PURPOSE FANS

Recommended for their ease of installation, low maintenance cost and space saving features



Portable, self-contained units of medium capacities for low pressure industrial and ventilating applications. Designed particularly for use with duct systems.

General Purpose Fans are made in three types and eight basic sizes with capacities from 1200 to 19,000 cfm. (Junior fans in five sizes from 160 to 4100 cfm). These include both direct connected and belt driven models.

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nyb products have 65 years of manufacturing experience and engineering knowledge built into them. All ***nyb*** products are laboratory tested, accurately rated and fully guaranteed in strict accordance with standard test codes.

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FACTORY, LAPORTE, INDIANA

For more data circle 156 on Reader Service Card

fer units known as Platecoils in a recently installed dip phosphatizing tank for processing cartridge cases.

The phosphatizing system, which was installed by Metalwash Machinery Corp., Elizabeth, N. J., uses six of the units, each of which consists of two embossed sheets of metal welded together to form channels for the passage of heating or cooling media. They are made by the Tranter Manufacturing Company of Lansing, Michigan.

These heat exchangers are easy to install, and can be removed or installed by two men in a short time. The units are suspended from two hangers, and have only two connections to loosen. No joints are immersed in the solution, thus helping to guard against leakage and corrosion.

For more data circle 10 on Reader Service Card

TRUE BRITE BRASS SOLUTION

A foolproof solution which has been in use over 6 years in light and heavy production.

- Ready To Use—Just Add Water
- No Variance in Color
- Trouble-Free—Little Supervision Needed
- Low Cost—Additions only once a day

Available in a variety of colors. Will match your sample.

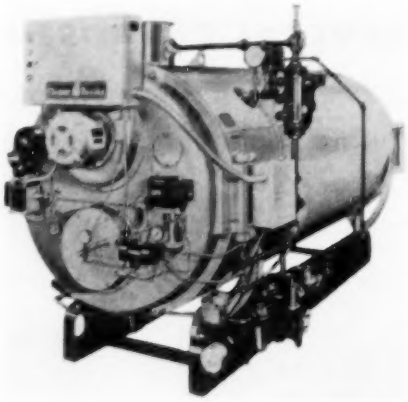
Write for technical bulletin and prices.

TRUE BRITE CHEMICAL PRODUCTS CO.
Box 31, Oakville, Conn.

For more data circle 157 on Reader Service Card

Silicone Finish Used on Boilers

A PAINT with quality finish, yet durable enough to withstand high temperatures, was needed by the Cleaver Brooks Company, Milwaukee, when introducing the "CB" line of packaged boilers. Cleaver Brooks engineers



Special silicone heat resistant finishes are used to protect the surface of the CB line of packaged boilers, such as unit above, manufactured by Cleaver Brooks Company, of Milwaukee.

adopted a special formulation of Sicon, a silicone heat resistant finish manufactured by the Midland Industrial Finishes Co., Waukegan, Ill.

Sicon, in tests, proved to possess not only the required heat resistance properties, but retained its color and gloss very satisfactorily. The company reports that as a result, Sicon in gray and maroon is now used on all CB models and has proven very satisfactory in heat resistance, appearance, and ease of application.

For more data circle 11 on Reader Service Card

Cut upkeep costs with "FLOTE"

. . . recent water-wash spray booth discovery
Only 75 cents a day saves up to $3500 a year!

"FLOTE"* eliminates sinking paint sludge—even with heavy primers; stops clogging, backwall build-up!

Regardless of the type of water-wash spray booth you use – and no matter what organic finish you use – Wyandotte "FLOTE" will improve operating efficiency, cut maintenance costs. Just add "FLOTE" to your water system.

For "FLOTE" *floats* all types of paint overspray – even heavy primers – and *keeps them afloat* for easy skimming. Eliminates most foaming problems, too!

Enthusiastic users of "FLOTE" include: one of the world's largest camera manufacturers; a leading farm-machinery company; a large truck-trailer producer; air-conditioning firms; a leading furnace manufacturer; an aircraft factory – even a mammoth auto maker . . . plus appliance and furniture manufacturers, and many, many more!

If you'd like to *float* away *your* spray booth problems, and cut maintenance costs, mail coupon for full data on Wyandotte "FLOTE." Do it today!

Wyandotte Chemicals Corp., Wyandotte, Mich. Also Los Nietos, Calif. Offices in principal cities.

In a water-wash spray booth, like the one above, as little as 75 cents worth of "FLOTE" a day can save you up to $3500 a year! "FLOTE" is a *complete* product – nothing else to add!

Wyandotte CHEMICALS
J. B. FORD DIVISION

*PATENT APPLIED FOR

Available in 150-lb. and 425-lb. steel drums.

WYANDOTTE CHEMICALS CORPORATION
Wyandotte, Michigan

Send me further data on "FLOTE" ☐
Have a representative call ☐

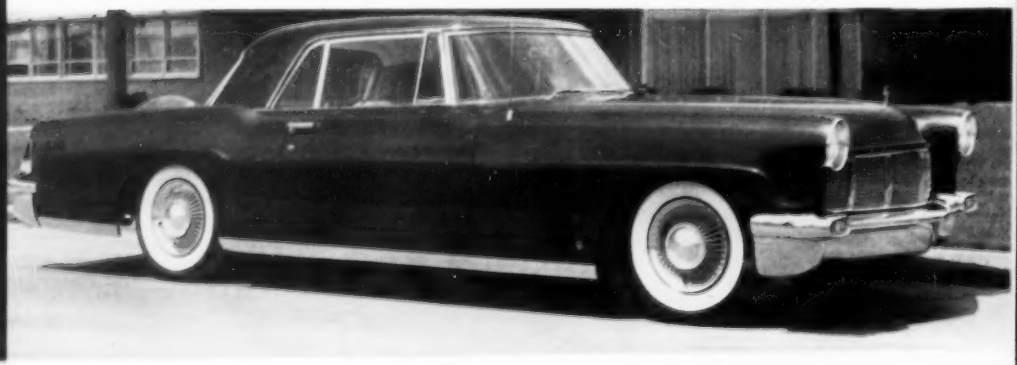
Name _____
Firm _____
Address _____
City _____ Zone _____ State _____

For more data circle 158 on Reader Service Card

Finishes That Aid in Appearance and Utility

Cadillac for 1956 (above) demonstrates trend to use of gold finishes. It is available with golden aluminum wheels and grille. Finish is applied by anodizing and dyeing aluminum, employing the Alumilite process, forming a coating of hard aluminum oxide, which is subsequently dyed gold. Resultant finish is bright and durable. (Photograph courtesy Aluminum Company of America, Pittsburgh 19, Pa.)

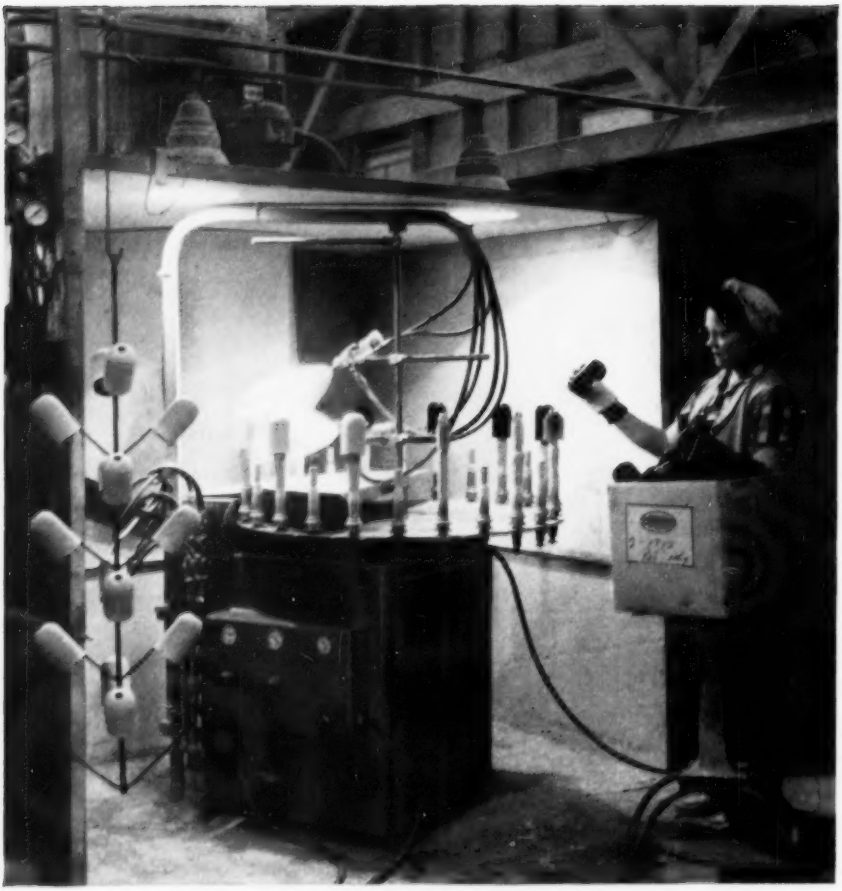
Attention to quality and detail mark finishing procedures for Continental Mark II (below). Painting is 14-stage operation, including hand sanding and baking between applications of primer coat, double surfacer coat, two separate double coats of lacquer. Painted surfaces are buffed and rubbed by hand to a high lustre. (Photograph courtesy Continental Division, Ford Motor Company, Dearborn, Michigan)



Black wire legs of this modern folding table are finished with electroplated zinc, then dipped in Enthone Ebonol, to create the appearance of black wrought iron. (Photo courtesy E. H. Titchener & Co., Binghamton, N. Y.)

A tower built for the Union Oil Company in San Francisco is faced with porcelain enameled steel. Panels are white, except for the "76" emblem and stripe. (Photo courtesy California Metal Enameling Co., Los Angeles, Calif.)

Stainless steel is used widely in General Motors' lightweight "Aerotrain." Stainless steel forms lower sections of passenger cars—areas subject to abrasion. Baggage compartment, various trim items are also polished stainless. (Photo courtesy Allegheny Ludlum Steel Corp., Pittsburgh)



DeVilbiss rotary machine and automatic spray guns have increased paint mileage, stepped up production at Smoot Holman Company. Firm also uses DeVilbiss spray booths, paint heater, hose, pressure tanks, and regulator.

THE DEVILBISS COMPANY

Toledo 1, Ohio

Santa Clara, Calif. • *Barrie, Ontario* • *London, England*

BRANCH OFFICES IN PRINCIPAL CITIES

SPRAY GUNS • AIR COMPRESSORS • HOSE AND HOSE CONNECTIONS

Smoot-Holman triples production with DeVilbiss Automatics

. . . saves $160 each day of operation

The Smoot-Holman Company, manufacturer of fine illumination equipment and plumbingware, in Inglewood, California, sprayed its products by hand for many years. With this method, the finishing department was completing about 900 pieces a day, and averaging 40 pieces per gallon of material.

Smoot-Holman Circl-lite, for overhead lighting, spray-finished by DeVilbiss equipment.

Recently, the firm installed DeVilbiss automatic spray guns . . . and an automatic rotary machine. Now, production has increased to 2700 pieces a day, or 300%, and one gallon of material coats 160 pieces! The result: finishing costs have been cut $160 each day the machine is in operation.

Smoot-Holman has been a DeVilbiss customer for 35 years. Says Joseph Disario, finishing superintendent, "DeVilbiss equipment has proved extremely reliable, and easy to service. But just as important is the personal service DeVilbiss representatives provide — training aids for our operators, and ideas that help us improve our finishing operation."

Put the experience and technical skill of a DeVilbiss representative to work for *you!* A look at your finishing department, and he may be able to suggest improvements that will give you better finishes . . . and at lower cost, as well.

FOR BETTER SERVICE, BUY

DEVILBISS

TRANSFORMERS • SPRAY BOOTHS • ACCESSORIES

For more data circle 159 on Reader Service Card

New Equipment, Materials, Processes

Cleaning

Polishing

Plating

Finishing

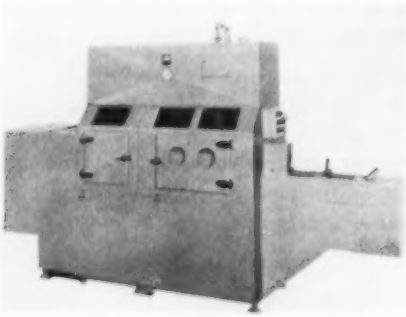
Automatic Pressure Blast Unit

An automatic pressure blast wet blast unit for the finishing of jet engine compressor blades has been announced by The Cro-Plate Co., Inc., 747-6 Windsor St., Hartford, Conn.

This unit finishes both sides of the airfoil section, removing heat treat scale and discoloration without stock removal or distortion, it is stated. The unit also incorporates a rinse facility for the removal of abrasive compound after blasting.

Blades are manually loaded on simple work holding fixtures which grasp at the root. A conveyor indexes blades into the blasting chamber where a series of moving guns actuated by an air hydraulic cylinder accomplish the finishing operation. Blades are then automatically indexed into the rinse cabinet and around to the original load section, where they are unloaded.

For more data circle 12 on Reader Service Card



Cro-Plate Automatic Pressure Blast Unit

★ ★ ★

Solution Control System

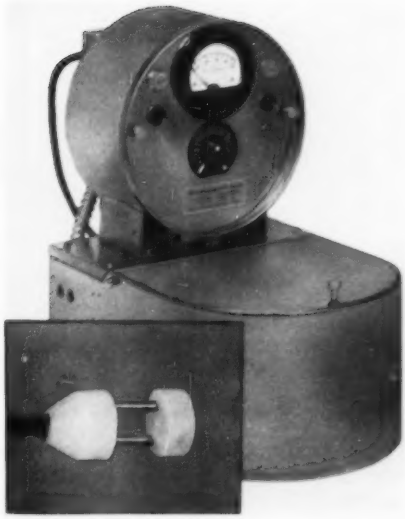
A system designed to improve efficiency of conductivity measurements in solution control has been developed by The Diversey Corporation, Electronic Equipment Dept., 1820 Roscoe St., Chicago, Illinois.

An electrode conductivity cell immersed in a solution vat or tank transmits impulses to an electronic control and feeder unit. This unit constantly measures solution strength and feeds chemicals only when required, maintaining solution at an even, predetermined strength.

The heavy duty electrode cell is made of stainless steel and polyethylene.

The control circuit and feeder unit is constructed of heavy duty stainless steel, and combines laboratory accuracy with durability for in-plant use. The conductivity meter measures in milliamperes, which may be interpreted in oz./gal. or per cent concentration.

Use of an electrode cell with the control unit is said to make a versatile



Diversey Solution Control Unit. Inset shows newly designed electrode conductivity cell.

unit for all conductivity and solution control applications. The unit is adaptable for use in chemical processing, acid or alkali solutions, metal cleaning and plating, phosphatizing of metals, fume collectors and varied water treatment processes.

For more data circle **13** on Reader Service Card

★ ★ ★

Fast Dry Screen Process Ink

The 5500 Series Fast-Dry Process Ink has been announced by the Naz-Dar Co., 461 Milwaukee Ave., Chicago 10, Ill. Under normal atmospheric conditions, the manufacturer states, this ink air dries on racks in 20 to 30 minutes. Under hot air, it will dry in minutes, and under the new type forced air dryers, it requires only seconds. As it dries entirely by evaporation, the printer can control drying under all climatic conditions.

The 5500 Series Fast-Dry Process Ink has good brilliancy and opacity, in addition to freedom from screen clogging, squeegee drag and static feathering. This ink is available in quarts, gallons, five gallon cans, and drums, in a wide variety of colors.

For more data circle **14** on Reader Service Card

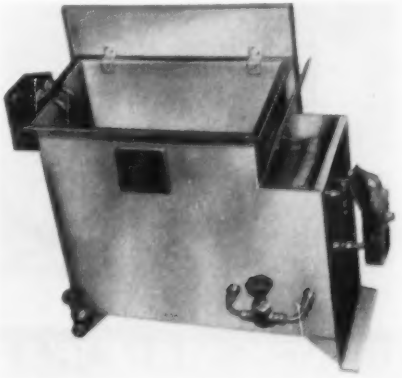
★ ★ ★

Laboratory Degreaser

A duplicate of large standard commercial degreasers, Model No. U-18 compact-size degreaser for vapor-spray degreasing of precision parts and for laboratory usage has been announced by Ramco Equipment Corp., Div. of Randall Manufacturing Co., 811 Edgewater Rd., New York 39, N. Y.

This unit is constructed of all welded stainless steel, with copper condensation coils and interplumbing. It has a stainless steel immersion heater, with thermostatic liquid heat control. Copper cooling coils maintain positive vapor level with needle valve water inlet control.

A water separator storage tank holds the entire contents of the main sump. The Ramco U-18 degreaser has a complete solvent recovery system—by operating an overflow valve, the machine automatically distills contaminated sol-



Model No. U-18 Laboratory Vapor Degreaser

vent and is ready for operation again.

The overall dimensions are 34 by 15 by 22½ inches with a working area of 18 by 12 by 12 inches. Capacity is 100 pounds per hour.

For more data circle 15 on Reader Service Card

★ ★ ★

Air Filter

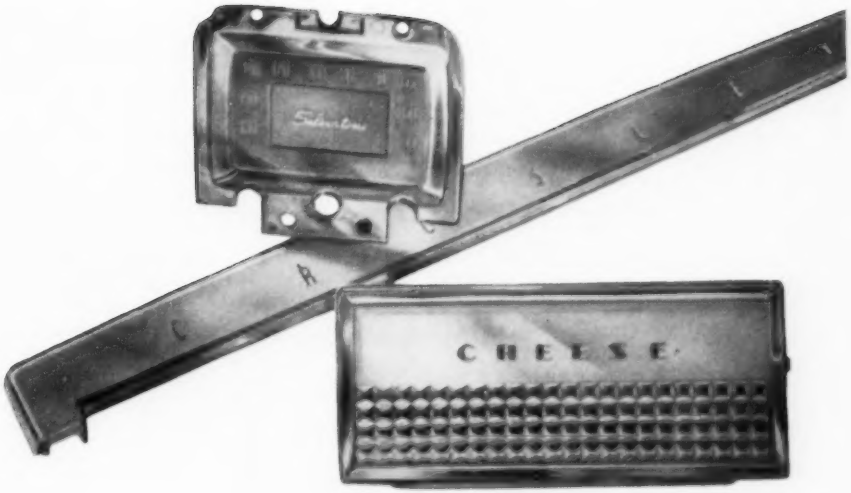
The "Roll-O-Matic," an automatic self-cleaning air filter introduced by American Air Filter Co., Inc., Louisville 8, Ky., is an adaption of glass fiber filtering media, designed for use in commercial and industrial ventilating and air conditioning systems to clean both outside and recirculated air. This filter combines the desirable characteristics of both dry type and viscous impingement air filters—the simple operation and convenient maintenance of the dry type with the large dust holding capacity and higher allowable operating resistance of the viscous type.

Roll-O-Matic Self Cleaning Air Filter

The Roll-O-Matic filtering media is

the SECRET of
BETTER
SPRAYING...
"HOLLOW AIR®" produces the widest, wettest, most uniformly distributed spray pattern obtainable handling synthetic enamels —an exclusive feature of the BLACK ARROW line of paint spray equipment.
Less pressure required . . . Paint and air are blended so that force alone is not relied upon to break up the paint.
Write today for information or see your local jobber
BLACK
BLACK MANUFACTURING COMPANY
201 SECOND St. HARRISON, NEW JERSEY
Manufacturers of Precision Built Paint Spray Equipment

For more data circle 160 on Reader Service Card



Bold burnished gold, costly silver flecks on a sky-blue field, soft amber—these and a host of other colors and finishes are given to plastic parts by Amos Molded Plastics, Edinburg, Indiana. Amos uses a CVC high-vacuum coater to achieve the rich beauty with inexpensive aluminum and lacquers.

How vacuum metallizing gives customers the color they want . . . *at a profit to the molder*

A CVC high-vacuum coater is helping Amos Molded Plastics meet an increasing customer demand for metallic-colored plastic parts.

In its coater Amos gives inexpensive plastic parts a rich, metallic luster—at a few cents per thousand. Using various lacquers Amos can produce a rainbow of colors and finishes—all highlighted by their metallic backing.

Easy to operate. Even inexperienced help can master the vacuum-coating process in a few hours. Following simple instructions, they can turn out flawless pieces by the hundred.

The operator simply inserts racks of lacquered parts into the chamber. An efficient vacuum pumping system quickly reduces the chamber pressure and the filament is heated to evaporate the aluminum. Immediately the aluminum condenses on the parts; they can be removed at once.

High production rate. This cycle can be repeated two, three, or even four times an hour, depending on the base material of the parts. A few *ounces* of aluminum can cover *thousands* of parts. The process works as well with basic metals as with plastics.

For information and assistance. We'll be glad to share our experience in vacuum metallizing and associated lacquering operations to help you set up your own system. Write for literature on our complete line of high-vacuum coaters.

Amos Molded Plastics uses a 48" CVC vacuum coater, similar to the unit illustrated, to process as many as 4,000 parts a day. Smaller-sized models, also available from CVC, provide economical operation for short production runs. Units are delivered with all necessary equipment and controls—ready to install.

CVC

Headquarters for High Vacuum

Consolidated Vacuum Corporation Rochester 3, N. Y.

a subsidiary of CONSOLIDATED ENGINEERING CORPORATION, *Pasadena, California*

CVC sales now handled through Consolidated Engineering Corporation with offices located in: Albuquerque • Atlanta • Boston • Buffalo • Chicago • Dallas • Detroit • New York • Palo Alto • Pasadena • Philadelphia • Seattle • Washington, D. C.

For more data circle 161 on Reader Service Card

a continuous length of fiber glass material. The material from the roll of clean media, mounted at the top filter casing, is transported on a continuous screen that rotates over top and bottom sprockets, down the face of the filter and is rerolled at the bottom after collecting its dust load.

A pressure switch sensitive to the resistance differential across the filter curtain actuates a drive motor that rotates the screen and feeds a certain amount of clean media into the filter curtain when the resistance reaches a predetermined point. In this way media usage is in direct proportion to dust conditions and hours of operation.

For more data circle **16** on Reader Service Card

★ ★ ★

Cold Cleaners

Manufacturers Processing Company of Detroit has introduced a line of cold cleaners.

These Manpro chemicals are made up of fast drying, non-toxic and non-flammable cleaners suitable for a variety of metal cleaning operations.

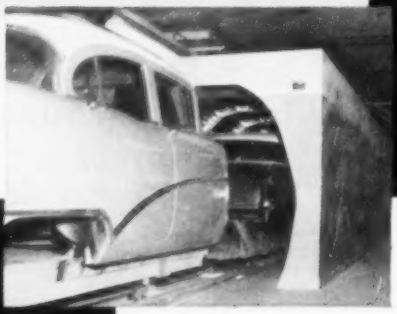
A Manpro cleaner designated as No. 21 has no flash or firepoint and is useful in cleaning and degreasing small parts.

For wipe-down on process equipment, Manpro No. 22 cleaner is said to include such advantages as low volatility and low dermatitis incident. The No. 22 cleaner has also found acceptance in soaking of small metal parts as well as cleaning of heavy machinery.

Manpro No. 24 cold cleaner is said to offer maximum solvency and

LEADING AUTO MANUFACTURERS INSTALL CLEPCO QUARTZ OVENS

• Finds CLEPCO Quartz Paint Ovens require half the floor space and half the KW input of infra-red bulb ovens.



HERE'S WHY...

CLEPCO Quartz Paint Ovens are based on the use of special CLEPCO Quartz Heaters designed to emit that part of the heat spectrum most readily absorbed by paints.

Another major auto manufacturer reports that CLEPCO Paint Ovens are lower in original cost as well as in operating costs than the conventional gas fired convection ovens previously in use.

CLEPCO'S Complete Research Facilities are at your service to determine the most efficient quartz oven for your requirements.

SEND FOR COMPLETE INFORMATION

THE CLEVELAND PROCESS COMPANY

1965 EAST 57TH STREET • CLEVELAND 3, OHIO

For more data circle **162** on Reader Service Card

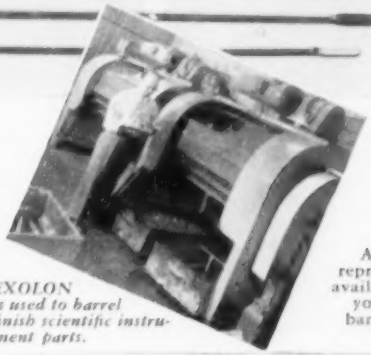
NOW... Finish Precision Parts with EXOLON Tumbling Abrasives

Savings over old Hand Finishing Methods—50 to 80 Percent

Today, scientific research has developed equipment and abrasives for better barrel finishing. Such an abrasive is EXOLON, an electrically fused aluminum oxide, resistant to fracture and extreme'y hard. EXOLON is pretumbled to produce rugged shapes that stand up longer in operation. Results are always the same — batch after batch when operated in formulated finishing cycles.

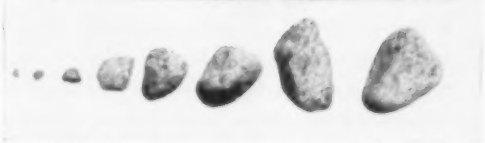
Precision parts shown above were barrel finished with EXOLON to a predetermined stock removal and surface finish. Whether castings, stampings or machined parts, there is an EXOLON abrasive to meet your finishing needs.

Write for folder and recommendations!



EXOLON is used to barrel finish scientific instrument parts.

An EXOLON representative is available to help you with your barrel finishing problems.



EXOLON Tumbling Abrasive is carefully graded in sizes from 2½ inches down to fine powders.

THE EXOLON COMPANY

942 EAST NIAGARA STREET — TONAWANDA, N.Y.

Manufacturers of SILICON CARBIDE and ALUMINUM OXIDE ABRASIVES

For more data circle 163 on Reader Service Card

unusually safe limits of flammability. It is claimed that this material assures maximum moisture displacement.

A complete performance and property chart is offered by Manufacturers Processing Company, 1354 Hilton Rd., Detroit 20, Mich.

For more data circle 17 on Reader Service Card

Vacuum Gage

A one to four-station vacuum gage which gives continuous pressure readings from 100 millimeters Hg to 1 micron (.001 millimeters) Hg, has been announced by Consolidated Vacuum Corporation, Rochester 3, New York, a subsidiary of Consolidated Engineering Corporation, 300 N. Sierra Madre Villa, Pasadena, California, the authorized dealer in this country for the manufacturer, LKB-Produkter, Stockholm, Sweden.

Called Autovac, it is a self-balancing, direct-reading, hot-wire type vacuum gage. It provides a high degree of calibration stability. Applications for the versatile gage include vacuum metalizers, and other vacuum processing equipment. The Autovac covers substantially all laboratory and industrial applications.

Outstanding feature of the instrument is its automatic switching from the millimeter range (100 to 0.1 mm Hg) to the micron range (100 to 1 micron Hg). A special range-selection circuit is used to do this. A red pilot lamp indicates when the instru-

GRIND-O-FLEX

the new flexible

GRINDING WHEEL

★ Removes burrs, flash, tool marks from irregular surfaces
★ Will not "flat" or dig into contoured shapes
★ Finishes metals, plastics; satin finishes stainless steel
★ Requires no special equipment, attaches to power tools
★ Safe and easy to use, requires no skill or experience
★ Comes in a wide variety of aluminum-oxide grits
★ See your Industrial Supply Dealer or write for catalog

MERIT PRODUCTS, INC.
4023 Irving Place, Culver City, California

Manufacturers of SAND-O-FLEX and GRIND-O-FLEX abrasive tools

For more data circle 164 on Reader Service Card

BELT CONVEYOR

OVERHEAD CONVEYOR

TRAY

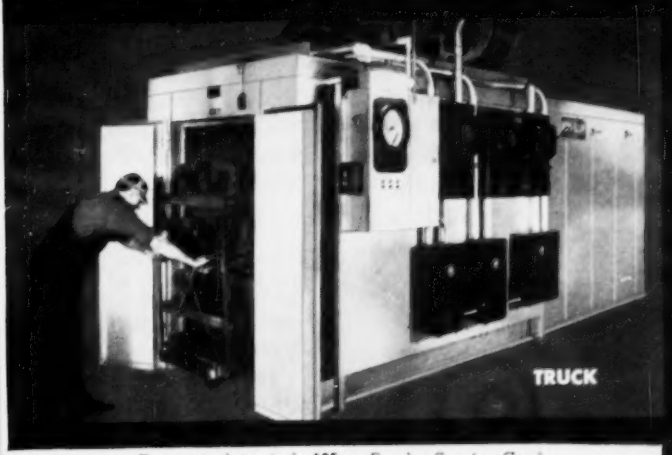
what type OVEN do you need?

KIRK & BLUM INDUSTRIAL OVENS

Your oven needs . . . large or small, batch or conveyorized production, for drying, baking or dehydrating . . . can be filled by KIRK & BLUM.

Compactly designed and expertly engineered to meet specific requirements, these typical installations show the wide range of KIRK & BLUM experience over more than 48 years. Often, ovens up to freight car size are shipped assembled, ready to operate.

Put this skill and experience to work on your industrial oven problem. For complete information and booklet, write: The Kirk & Blum Mfg. Co., 3116 Forrer St., Cincinnati 9, Ohio.



TRUCK

For more data circle 165 on Reader Service Card

KIRK & BLUM INDUSTRIAL OVENS

"Autovac" Vacuum Gage

ment is in the millimeter range.

Other major Autovac features include a wide measuring range, its ability to actuate an external relay circuit for various purposes, such as operation of valves, and connection for 4 gage tubes.

The relay circuit used for automatic range selection has been provided with an extra outlet. This can be used for connecting an external relay to be used for such purposes as disconnecting the heater of a diffusion pump, for actuating a solenoid valve, or for giving an alarm signal. The relay is available as an accessory.

Autovac will operate from 110 to 240 volt, 50/60-cycle a.c. Built to instrument-quality specifications, the overall dimensions of the Autovac are 12¼ by 6¾ by 8½ inches.

For more data circle **18** on Reader Service Card

★ ★ ★

Heat Transfer Unit

The Tranter Platecoil, a heat transfer unit, is fabricated by embossing half of a fluid passage on each of two sheets of metal and then seam and spot welding them together. The plate thus

Protect spray booths with

BOOTHCOTE

the finest product made!

SAFER

Non-Inflammable, Non-Toxic

DRY-OR-WET

Boothcote No. 4 for dry wall booths (just peel off overspray)

Boothcote No. 5 for water wash walls

SAVES

TIME, LABOR, MONEY!

(Apply — Spray or Brush)

In 55 gal. drums . . . 80¢ gal.

In 15 gal. drums . . . $1.00 gal.

In 5 gal. pails . . . $1.25 gal.

F.O.B. Buffalo, N. Y.

Inquiries Invited — Samples on Request

HYGRADE

Food Products Corp., Industrial Division

18 Stetson St., Buffalo 6, N. Y.

For more data circle **166** on Reader Service Card

NICKELITE

BARREL NICKEL BRIGHTENER

cuts brightening costs — concentrated to quadruple strength—shipping weight is cut 275%. You don't ship, store or handle water! No deposits, no carboy returns. A capful is enough for a barrel of nickel.

Platers Research Corporation

Nickelite boosts corrosion resistance of barrel nickel 30 to 100% by actual salt spray test.

59 EAST 4TH ST.

NEW YORK 3, N. Y.

For more data circle **167** on Reader Service Card

KETONE LACQUER SOLVENTS

give better flow, blush-resistance, gloss—and a price advantage, too!

In either nitrocellulose or vinyl lacquers, ketones yield solutions of high solids content, or permit greater diluent content—with either aromatic or aliphatic diluents. In any formulation, ketones produce lacquers with superior characteristics at no increase in cost.

Ketone-based solvent systems assure complete flexibility in formulating. *You* add the latent solvents *you* prefer. In addition, they give you a price advantage. When you buy by the pound, and sell by the gallon—the lower specific gravity of ketones favors *you*. Important, too—ketones are high-purity solvents at no extra cost. You get all active solvent.

The Shell Chemical "quality group" of active solvents includes MEK, MIBK, and EAK, as well as latent solvents MIBC, IPA and Ethyl Alcohol.

• • •

Ask your Shell Chemical representative to help you evaluate ketones in your own formulations.

SHELL CHEMICAL CORPORATION

CHEMICAL PARTNER OF INDUSTRY AND AGRICULTURE

380 Madison Avenue New York 17, New York

Atlanta • Boston • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco • St. Louis

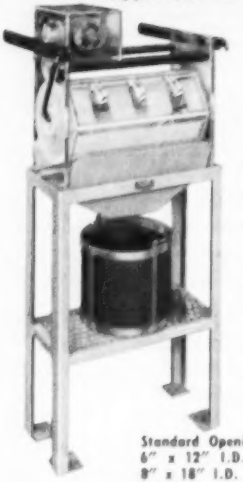
IN CANADA: Chemical Division, Shell Oil Company of Canada, Limited • Montreal • Toronto • Vancouver

WAIT!

Soon to be *Announced*

NEW
STUTZ
BELT DRIVEN
Production
Plating Barrel

with special features.....



STUTZ
Portable Plating Barrels

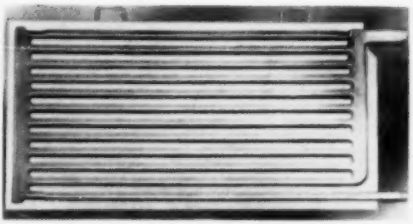
- The Stutz Portable Barrel is made in 2 standard sizes with cylinders having inside dimensions of 6" x 12" and 8" x 18", I. D., and smaller upon application. Standard openings are 3/32". Smaller or larger openings can be furnished as required.
- Baskets in perforated metals or wire mesh.
- Load/Unload Stand for convenient and fast handling of work load.

MADE IN TWO STANDARD SIZES

Standard Opening	3/32"
6" x 12" I.D.	$186.50
8" x 18" I.D.	$295.00
Stand	$ 39.50
Perforated metal	$ 9.15
Wire mesh	$ 6.15

Serving Industry 35 Years GEO. A. STUTZ MFG. CO. 4410 Carroll Ave. • Chicago 24, Ill.

For more data circle 169 on Reader Service Card



Style 70 Platecoil Heat Transfer Unit

formed results in a unit through which heating or cooling media can be circulated. Two styles have header construction and are designed primarily for a vapor phase medium such as steam. A third style has serpentine passages and is intended principally for liquid heating and cooling media.

Platecoil can be installed quickly, because it is light and easy to handle. For instance, a Style 90 Platecoil 22 inches wide and 119 inches long weighs 110.33 pounds. In the average, open tank installation, handles on the Platecoil slip over simple hangers on the tank wall.

When it is necessary to replace a Platecoil for cleaning or repair, its light weight and simple mounting materially reduce the down time for equipment as well as the maintenance handling time.

Other maintenance time is saved also because the two sides of a Platecoil are easy to clean. This is an important consideration when the heating surface is subject to scale formation.

Platecoil is manufactured by the Platecoil Division of Tranter Manufacturing, Inc., Lansing, Michigan.

For more data circle 19 on Reader Service Card

★ ★ ★

Barrel Finishing Compounds

Two barrel finishing compounds for use on zinc die castings have been an-

"PROOF of THE FINISH is in THE OVEN" ...to a great extent.

We're inclined to base this statement on the testimonies of the many manufacturers we have been privileged to serve.

High volume, high quality finish production is almost a necessity everywhere today.

Users of our oven designs and installations tell us they are accomplishing this with comparatively low operating costs.

This makes for satisfaction all around.

Typical Quotes from Many of the Satisfied Users of LANLY Ovens in Diversified Industries

"Our paint appearance and gloss has improved considerably since we installed the New *LANLY BAKE OVEN.*"

R. O. R.

"We bake twenty-two colors in pastel shades on metal. With the LANLY OVEN we have experienced highly satisfactory results in obtaining uniform color and complete baking."

K. W. B.

We'll welcome the opportunity to discuss your drying and baking operations with you without obligation.

WRITE FOR THE CATALOG . . .

LANLY
FINISHING OVENS
THE LANLY COMPANY • 760 PROSPECT AVE
CLEVELAND, OHIO

For more data circle 170 on Reader Service Card

nounced by the Esbec Barrel Finishing Corp., 18 Beech St., Byram, Conn.

Esbec No. 655 is a mild abrasive compound which produces smooth surfaces in short cycles and rinses completely at the end of the cut down run.

This is followed by a short burnishing cycle in Esbec No. 205 burnishing compound which, the makers state, will produce high lustre on all types of zinc alloys.

For the ultimate in color and lustre, parts should be run in Esbec No. 205 with hardened steel balls or other burnishing media.

For more data circle 20 on Reader Service Card

★ ★ ★

Cleaning Machine

Magnus Chemical Company, Inc., 208 South Avenue, Garwood, N. J., has announced a Magnus Aja-Lif Cleaning Machine with "gyro-vertical motion." It is equipped with a work carrying platform combining rotary motion with vertical up and down agitation. At the same time as the work is moved up and down 120 vertical motions per minute, it is slowly rotated through a complete 360 degree circle. Oils, loose chips, casting sand and similar industrial soils are removed from intricate castings such as journal boxes and motor blocks.

The work to be processed can be transported to the equipment on the plant roller conveyor. The oper-

Use The Right Glove For Your Job!

Let PIONEER's "Hand Protection Clinic" help. Send (Attn: Hand Protection Clinic) a complete job description on your company stationery, including dexterity and abrasion resistance requirements, and complete description of chemicals or solvents used. Our solution of your glove problem will assure you of maximum worker protection and comfort at the minimum cost.

Complete PIONEER Catalog available on request

New Flock-lined Neoprene Stanzoil Glove withstands oils, acids, greases, caustics and solvents. Combines dexterity with comfort.

PIONEER

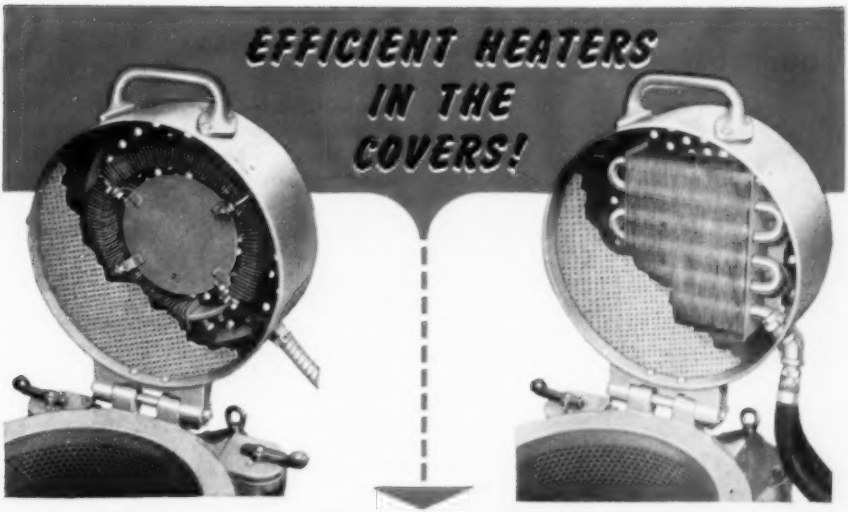
Stanzoil

the PIONEER Rubber Company

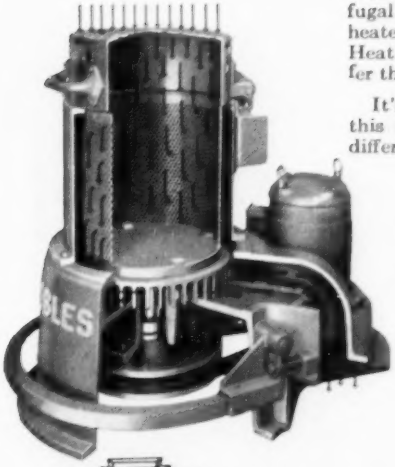
285 Tiffin Rd. • Willard, Ohio, U.S.A.

Pioneers in Industrial Hand Protection For Over 35 Years

For more data circle 171 on Reader Service Card



FOR LOWER DRYING COSTS!



As optional equipment with any Nobles Centrifugal Dryer, you may have efficient steam or electric heaters safely and compactly mounted in the cover. Heat doesn't come from an auxiliary unit and transfer through pipes . . . it saves space, saves heat.

It's only one of many features you'll like about this machine of advanced design. It's completely different in principle. The old way was to *blow* air down at the parts. A powerful suction fan *draws* the air from the bottom of the modern Nobles Dryer. Fresh air rushes in from the top to fill the vacuum, is drawn evenly through the entire contents and exhausted at the bottom.

You'll like its extra weight, its smoothness, its freedom from vibration. As one user put it, "Certainly it depreciates less and requires less maintenance than any competitive product."

In the interest of lower drying costs, write for more information today!

NOBLES ENGINEERING & MANUFACTURING CO.

631 EAST SEVENTH STREET ST. PAUL 6, MINNESOTA

Write Today for the FREE NOBLES-DRYER BROCHURE

For more data circle 172 on Reader Service Card

Can you use this man in your business?

TOM CANNON, JR.

. . . If spray painting is a vital part of your business operation, we'll bet money you can.

Speaking of money, that's the best part in obtaining this man for your business because it doesn't cost you a dime. His name is Tom Cannon, Jr., one of Spee-Flo's qualified sales engineers. A finishing specialist, he has the technical know-how to improve quality control and reduce unit costs in your paint department.

It's all part of the Spee-Flo Company's policy, expert technical assistance and quality hot spray heaters tailored for your requirement.

At your request, Tom Cannon, Jr., or one of our staff of over twenty-five factory specialists, will roll up his sleeves and "go to work" for your firm without charge or obligation. He is prepared to demonstrate how the Spee-Flo hot spray process can cut production costs, and smooth out paint department "bottle-necks."

Your reply to this offer will receive our prompt attention. Write the **SPEE-FLO Manufacturing Corporation, 720 Polk, Houston 2, Texas.**

For more data circle **173** on Reader Service Card

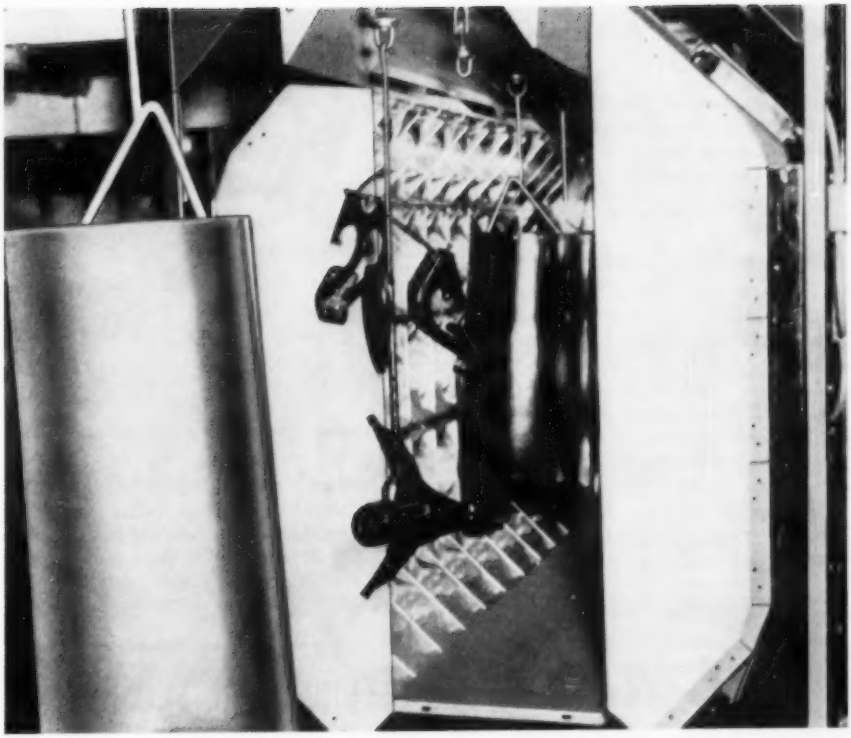
ator secures the casting on the revolving platform using the adjustable hold down device which keeps the work in position during the combined rotation and up and down agitation.

The operator then moves the agitating lever which causes the platform to lower in the solution where it immediately starts its fast cycle of up and down vertical agitation. Then the revolving platform starts to rotate.

After completion of the washing cycle, the platform is raised to unloading position. The rotation of the work continues for a few seconds to completely drain all liquids from inside recesses of the part being cleaned. The hold down device is released and the operator transfers the work to the rinse machine where the process is repeated.

Engine block being lowered into Aja-Lif Cleaning Machine

The Magnus Aja-Lif Cleaning Machine with "gyro-vertical motion" re-



Eleven minutes is just long enough to save some money

International Harvester *knew* that radiant heat was fast, but they still got a happy surprise when they installed a Fostoria Oven: Before, they had dried cream separators in a convection oven. The thing took up *480 square feet* of floor space and needed a baking cycle of *one hour*. (We won't even mention the long warm-up time.)

That's when Fostoria came in with a specially designed radiant oven that cost less to buy, less to operate. It fits handsomely in IH's production line. It's only *eleven feet long*, and bakes a neat finish coat of enamel on the separators in just *eleven minutes*. You can just bet your old convection oven they're happy with it.

Your plant? The same thing would happen. Let us show you how.

Write for FREE booklet "APPLICATIONS UNLIMITED."

INFRA-RED fostoria SYSTEM

THE FOSTORIA PRESSED STEEL CORPORATION, Dept. 1222, Fostoria, Ohio

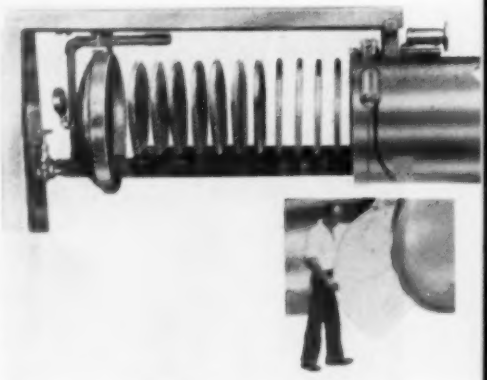
For more data circle **174** on Reader Service Card

quires no special foundation and can be installed in any existing production line where cleaning is necessary.
For more data circle 21 on Reader Service Card

★ ★ ★

Horizontal Filter

Features that speed up operation and simplify recovery or disposal of filter cake are being built into filters made by Industrial Filter and Pump Mfg. Co., 5904 Ogden Ave., Chicago 50, Ill. These include a quick opening hydraulically operated and sealed door, and filter leaves which lift out and snap back into place without bolts. An optional vibrating attachment shakes off the filter cake, eliminating the need for scraping or shaking by hand. Standard features also include power or manual withdrawal of leaf assembly, completely exposing all the leaves; bottom outlet; air drying facilities; and optional leaf spacing.
For more data circle 22 on Reader Service Card



Horizontal Filter, showing filter leaves exposed

Park No. 290
BLACKENING SALT

Black Oxide finishing for rust resistance and decorative parts. Speedy black coating in water solution with no electric current. Permanent black finish on ordnance parts, tools, aircraft, bearing races. Dazzling black decorative finish for television cameras, business machines, hardware, metal screens and machine parts. Excellent bond for paints and enamels. Simple one bath operation. Write for bulletin H-16. Park Chemical Co., 8078 Military Ave., Detroit 4, Mich.

For more data circle 175 on Reader Service Card

FUNCTIONAL FINISHES!!

If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity —

Try Us!

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

The Varnish Products Co.
5204 Harvard Avenue
Cleveland, Ohio

For more data circle 176 on Reader Service Card

Hi! BURNT UP

about TUMBLING CHIP COSTS?

If So — Let Us — Help You

Don't be Misled-
we own Our Own Quarry!

CHIP SIZES LIMESTONE & GRANITE

Chip Size	Pass Thru	Stay on Top
No. 1	1¾" Screen	1¼" Screen
No. 1A	1¾" Screen	1½" Screen
No. 1B	1½" Screen	1¼" Screen
No. 2	1¼" Screen	⅞" Screen
No. 2A	1¼" Screen	1" Screen
No. 2B	1" Screen	⅞" Screen
No. 3	⅞" Screen	⅝" Screen
No. 3A	⅞" Screen	¾" Screen
No. 3B	¾" Screen	⅝" Screen
No. 4	⅝" Screen	5/16" Screen
No. 4A	⅝" Screen	½" Screen
No. 4B	½" Screen	5/16" Screen
No. 5	5/16" Screen	⅛" Screen
No. 5A	5/16" Screen	3/16" Screen
No. 5B	3/16" Screen	⅛" Screen
No. 6	⅛" Screen	3/32" Screen

The Original
PROCESSED LIMESTONE HONING CHIPS

PROCESSED RED GRANITE TUMBLING CHIPS

and we are the ONLY SOURCE that can supply you with this material

Contact Your Exclusive Distributor or us direct.

8¢ *PER POUND*
PACKED IN 100 LB. BAGS F.O.B. DETROIT, MICH.

Chip Samples and Sample Parts Processed Free

UNIVERSAL TUMBLING SUPPLY CO.

14337 MANSFIELD, DETROIT 27, MICHIGAN

Phones: VE 8-2071 • WO 1-9198

For more data circle 177 on Reader Service Card

Cold Chemical Coating

Alumblack, a cold chemical finisher for aluminum coating has been announced by the Birchwood Chemical Co., 4500 W. 44th St., Minneapolis, Minnesota.

According to the manufacturer, this formula, designed principally for retouching and fabrication of small parts, gives a soft or high gloss finish immediately upon application and requires one minute for drying. It can be dipped, sprayed or applied with a rag or brush and there is no surface spotting or density variation. If left unrubbed, a dull gloss finish is obtained; if rubbed, a high gloss finish will result.

For more data circle **23** on Reader Service Card

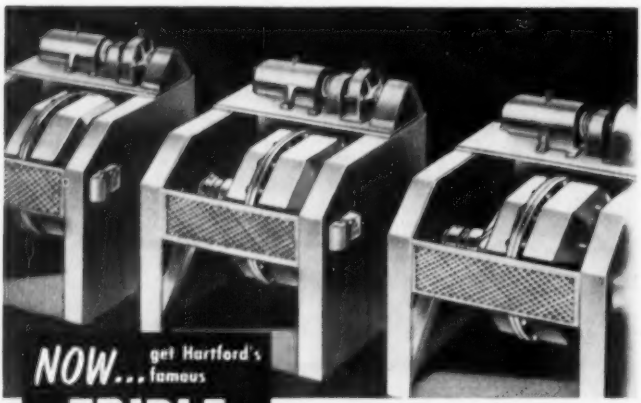
★ ★ ★

Immersion Plating Solutions

Solutions for plating by immersion without current have been announced by Research Laboratories of Colorado, Inc., Box 307, Newtown, Ohio. Called "Klad Dip-Platers," solutions are available to produce coatings of gold, copper, cadmium, imitation gold, bronze and tin.

All of these solutions will plate on steel only, except for Gold Klad, which will plate onto silver, copper, and most cuprous alloys.

Characteristics of this method of plating include deposition of coatings up to 0.05 mil., (cadmium plates thicker—from 0.10 to 0.20 mils) excellent throwing power, since metal will deposit on any surface which the



There's a new look in Hartford's Tumbling Barrels... but underneath you get the famous Triple Action Barrel originated by Hartford and unsurpassed for doing a better job ...faster... at lower cost.

Compare these advantages! The Hartford fully enclosed Model 1956 is extremely compact...requires less floor space than most enclosed barrels. With Hartford the power unit is on top, where it belongs for long life, cleanliness and ease of maintenance. Barrel is mounted on rugged "A" frame for maximum strength. Streamlined steel enclosure confines splash and contributes to safe operation. Pivoted front guard opens to permit quick, easy loading and unloading . . . plus easy removal of barrel assembly. Standard power unit has four speed gear shift transmission. Literature and prices promptly furnished.

Hartford

PRECISION BALLS • RETAINERS
BEARINGS • TUMBLING BARRELS

THE HARTFORD STEEL BALL CO., INC.
14 Jefferson Avenue W. Hartford 6, Conn.

For more data circle **178** on Reader Service Card

ACME Automatics

FOR HIGH PRODUCTION at LOW COST on

POLISHING and BUFFING • DE-BURRING
WIRE BRUSHING and MICRO-FINISHING

• **Proved performance and dependability in industry for half a century**

RECOMMENDATIONS and QUOTATIONS

• *We will be pleased to receive blue prints or preferably finished and unfinished samples of the part you contemplate finishing together with detailed information on present finishing operation and production requirements. On receipt of samples and data we will offer recommendations and quotations.*

CATALOGS ON REQUEST

ROTARY STRAIGHT LINE SEMI-AUTOMATIC AND SPECIAL *Polishing and Buffing Machinery*

ACME Manufacturing Co.

1400 E. 9 MILE RD., DETROIT 20 (Ferndale) MICH.

Builders OF AUTOMATIC POLISHING AND BUFFING MACHINES FOR NEARLY HALF A CENTURY

For more data circle 179 on Reader Service Card

It's New

solution can wet; production of a bright plate on polished surfaces; and production of a film which is said to be non-porous.

The solutions are non-toxic, and do not produce harmful fumes. In use, the article to be plated must be cleaned, and bright dipped where necessary. Immersion time in the plating solution varies from less than a minute to five minutes. Solutions are used at temperatures ranging from 65 to 80 deg. F. Articles must be rinsed in water after plating. Small articles can be dumped into stainless steel wire or plastic mesh baskets and immersed in the plating solution. Larger items can be suspended on wire or a plastic string.

For more data circle **24** on Reader Service Card

Engineered for Extra Years of Trouble-Free Operation
WALKER
Selenium Rectifiers
You can't beat Walker Selenium Rectifiers for dependable D.C. regardless of the size of your plating installation.
These outstanding rectifiers are especially designed to give year in, year out service . . . minimum maintenance . . . no moving parts . . . nothing to wear out . . . nothing to get out of adjustment.
You get more for your money when you use Walker Selenium Rectifiers. Get the complete story, today. Write
Walker
THE WALKER DIVISION
NORMA-HOFFMANN BEARINGS CORPORATION
STAMFORD, CONNECTICUT

For more data circle **181** on Reader Service Card

Chemical Resistant Plastic Tanks

A line of chemical resistant reinforced plastic tanks has been announced by the Modular Plastics Co., 1635 Westminster, Detroit 11, Mich. Developed specially for the plating industry, these tanks are engineered and stress-analyzed for the particular application in which they will be used.

According to the manufacturer, it is not necessary to insulate electrical connections from the Modular tanks since reinforced plastics are good dielectric materials. Grounding and short-circuiting dangers from racks and work are reduced.

Construction features include lapped, resin-bonded, reinforced and bolted joints that provide ample safety factor for the size of the tank. All bolts are covered with plastic to prevent corrosion. Overflow dams and outlet fittings are easily installed and present no construction problems.

For more data circle **25** on Reader Service Card

★ ★ ★

Zinc and Cadmium Determination

A procedure for the determination of cadmium and zinc in plating baths has been announced by R. O. Hull & Co., Inc., Rocky River 16, Ohio. The method is based upon titration of the plating solution against a 0.0575 molar solution

MASKING TAPE
DIE-CUT TO YOUR EXACT SPECIFICATIONS FROM
SCOTCH BRAND
INDIVIDUAL PIECES • ANY SIZE OR SHAPE
For quick, accurate masking operations.
PHONE OR WRITE PANOCO
166 HENRY STREET, STAMFORD, CONN.

For more data circle **180** on Reader Service Card

It's New

The FINISHING INDUSTRY'S only complete directory

OUTSTANDING...

in Editorial Features

in Circulation

in Advertising Value

19,000

circulation (guaranteed) among users of painted and plated finishes

- More Circulation in the plating field
- More Circulation in the painting field
- At Less Cost Per Thousand circulation than any other metal finishing publication, regular or directory issue!

Expose your advertising to the industry's most influential buyers in a media that enjoys year 'round use . . . PRODUCTS FINISHING Directory.

Advertising rates are based on space run in the regular issues of PRODUCTS FINISHING. The Directory can be used individually or in combination with monthly issues to earn the four, seven or thirteen time rate.

Complete details are available in a new brochure ready now.

Write for your copy today or contact your PRODUCTS FINISHING representative.

Single source reference to:

- Alphabetical Listing of Products and Processes
- Listing of Manufacturers Alphabetically by Product
- Names and Addresses of Manufacturers of Finishing Equipment and Processes
- Product Literature

products finishing directory

Gardner Publications, Inc.
—also publishers of Products Finishing and Modern Machine Shop
431 Main Street
Cincinnati 2, Ohio

1956 Edition
Issued March 15, 1956
Closing Date: Feb. 15, 1956

of ethylenediaminetetraacetic acid (E. D. T. A.). Other reagents used in this method of determining cadmium and zinc quantitatively include ammonium hydroxide, hydrochloric or sulfuric acid, Eriochrome Black "T" Indicator Mix, and formaldehyde.

The procedure for the determination is as follows: 1) pipette 2 ml. of the solution being analyzed into a flask, dilute with 100 ml. water; 2) neutralize to faint white precipitate with hydrochloric or sulfuric acid; 3) add 10 cc concentrated ammonium hydroxide and 0.2 grams Eriochrome Indicator Mix; 4) zero burette; 5) add 8 cc 8 per cent formaldehyde solution; 6) titrate with E. D. T. A. solution. The color change is from red to blue, and is distinct. With proper technique, a sharp end point is obtained. R. O. Hull & Company can supply all solutions for this determination.

For more data circle **26** on Reader Service Card

★ ★ ★

Electronic Control Instrument

An electronic instrument which makes it possible to test and control continuously an unlimited number of industrial processes from a single vantage point has been developed by the Fielden Instrument Div. of Robertshaw-Fulton Controls Company.

Electronic control device used to control a series of processes. Unit at top indicates temperature of each step in process as it comes under control. Unit in middle tells which step is being controlled. If the temperature deviates from a prescribed setting, the instrument will stop automatically, showing an attendant both the location and extent of the trouble. To restart scanner, attendant presses reset button. Scanner will stop on over-temperature point again unless the condition is corrected, or a by-pass connection made.

The instrument, called an indicating scanner, monitors a variety of process variables involving level, temperature, thickness, mechanical movements, tolerances, weight and pressure. It will keep a steady check on 6, 12, 24, 48 and more steps in a process.

The speed of scanning depends largely upon the number of points to be checked, with a maximum rate of one point per second. Where there is a process that strays beyond the pre-set control zone, the scanning stops at that point and actuates an alarm or flashes a signal. The indicator dial shows the extent of the deviation. Associated control systems may automatically correct the condition.

For more data circle **27** on Reader Service Card

METABOND

MEANS *PROGRESS* IN RUSTPROOFING

METABOND is the only effective immersion or spray amorphous type zinc coating in the industry today.

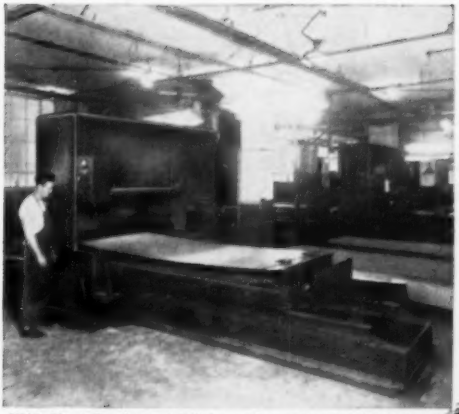
METABOND withstands severe and consistent flexing and bending without chipping or breaking bond.

INTERNATIONAL RUSTPROOF CORPORATION

12507 PLOVER AVENUE · · · · CLEVELAND 7, OHIO

MANUFACTURERS OF RUST PREVENTIVES AND CORROSIVE SOLVENTS

For more data circle **183** on Reader Service Card



HILL Sheet Grinder and Polisher with reciprocating hydraulic table processing individual sheets.

HILL

GRINDING and POLISHING MACHINES

How much is it costing you to produce ACCEPTABLE finishes on FLAT surfaces

HILL Pinch Roll Grinder and Polisher for "Wet" or "Dry" operations. (Shown in series for straight line production)

HILL 2-Roll Vertical Abrasive Belt Grinding and Polishing machines are the logical result of 25 years of research and experience in producing self contained units for successfully processing ferrous and non-ferrous sheets. We have consistently proven that wide abrasive belt grinding and polishing equipment must incorporate these fundamental features — rugged construction, simplicity of design, accessibility, versatility and centralized controls.

HILL abrasive belt polishing machines are recommended for continuous operation and insure lower production costs with superior finishes as required today by the manufacturers of decorative plastics, food processing equipment, automobile bumpers, lithographers and photo engravers plates, home appliances, etc., etc.

Both types of machines are normally built up to 60" wide, and larger capacity equipment can also be furnished.

Your inquiries are solicited for detailed information and recommendations.

TOOLS OF INDUSTRY

THE HILL ACME COMPANY

1209 WEST 65th STREET • • • CLEVELAND 2, OHIO

"HILL" GRINDING & POLISHING MACHINES • HYDRAULIC SURFACE GRINDERS • ALSO MANUFACTURERS OF "ACME" FORGING • THREADING TAPPING MACHINES • "CANTON" ALLIGATOR SHEARS • BILLET SHEARS • PORTABLE FLOOR CRANES • "CLEVELAND" KNIVES • SHEAR BLADES

For more data circle **184** on Reader Service Card

Vapor Degreaser

Baron Industries, 241 W. Avenue 26, Los Angeles 31, Calif., has extended the Baronet Series of barrel degreasers to include two rectangular vapor spray degreasers for large size parts and heavier work loads.

These compact degreasing machines are fabricated of 12 gauge and 3/16 inch plate for longer life, and are protected against corrosion with a fused phenolic interior coating. These models retain the advantages of the barrel degreaser while providing such heavy duty features as a full water jacket, offset coil condenser and complete manual spray equipment.

Available in two sizes, these units have unobstructed working dimensions of 36 or 48 inches in length, width 18 inches and vapor depth, 24 inches.

Larger Baronet Vapor Degreaser has increased capacity. Inset shows standard barrel degreas-

Rapid parts cleaning is accomplished with non-flammable trichlorethylene vapors. The oily parts are lowered into the vapor zone of the machine and in a matter of seconds, the parts are automatically cleaned. When removed, the work is warm and dry, ready for further processing. The work is never placed in dirty solvent, just pure vapors, so results are consistently the same regardless of previous use.

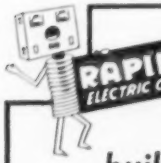
As little as twelve gallons of solvent are required for operation by the degreaser's reclaiming feature. When the solvent becomes dirty, it can be reclaimed automatically within the machine for further use.

For more data circle 28 on Reader Service Card

★ ★ ★

Barrel Finishing Compounds and Media

A line of abrasive, burnishing, cleaning, and neutralizing compounds prepared especially for barrel finishing operations has been announced by Newton Industries, Inc., 100 Saw Mill Rd., West Haven, Conn. Four classes of compounds have been formulated to meet varying requirements along progressive stages of barrel finishing opera-



SELENIUM RECTIFIERS

. . . built to your Specifications.

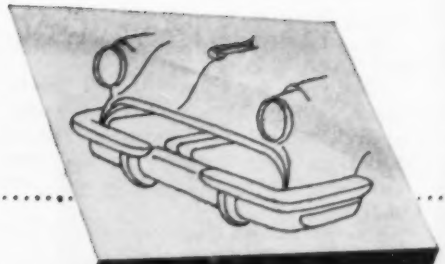
INDUSTRIAL AND LABORATORY USE.

- ELECTROPLATING
- ANODIZING
- PERIODIC REVERSERS
- CONTROLS

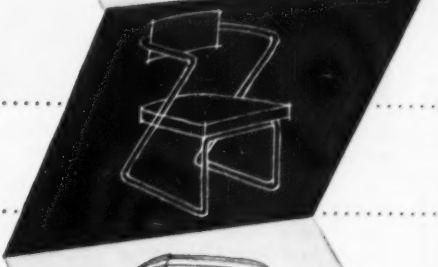
CATALOG AVAILABLE ON REQUEST.

RAPID ELECTRIC CO.
2877 MIDDLETOWN ROAD, N. Y. 61, N. Y.

For more data circle 185 on Reader Service Card



HARSHAW
electroplating
CHEMICALS
and
ANODES



nickel plating

. still and barrel nickel anodes—all commercial grades and sizes anode bags single nickel salts—nickel chloride . nickel carbonate nickel fluoborate boric acid

chromium plating

. . . pure "Krome Flake" 99.8% CrO_3 . . sulphates less than .10% . . lead, tin-lead and antimony-lead anodes.

copper plating

. . copper ball anodes . . Rochelle Salts . . . sodium and copper cyanides . . . copper sulfate . . . copper fluoborate.

cadmium plating

. . . ball and cast cadmium anodes . . . cadmium oxide . . . sodium cyanide . . . cadmium fluoborate.

tin plating

. . . cast tin anodes . . . sodium stannate . . . stannous sulfate . . . tin fluoborate . . . acid tin addition agent.

zinc plating

. . . ball and cast zinc anodes . . . sodium and zinc cyanide . . . zinc sulfate . . . zinc fluoborate.

lead plating

. . . cast lead anodes . . . lead fluoborate.

silver plating

. . . silver cyanide.

THE HARSHAW CHEMICAL COMPANY

Cleveland 6, Ohio

Chicago 10, Ill. • Cincinnati 13, Ohio • Detroit 28, Mich.
Houston 11, Texas • Los Angeles 22, Calif. • Philadelphia 43, Pa.
Pittsburgh 22, Pa. • New York 17, N. Y.

For more data circle 186 on Reader Service Card

Use of Newton Compounds and Polishapes in a finishing operation at Graflex, Inc.

tions. According to the manufacturer, they will not paste, plug, or bind up tapped or blind holes.

Newton Class A compounds for heavy deburring and cutting are used for initial stages of finishing, depending on the character of the metal, shape, size, and degree of finish required. Class B compounds for regular deburring and semi-burnishing can be used for follow-up finishing. Still other parts may require a third operation with Newton Class C compounds for burnishing. As a last stage, Class D compounds for cleaning possess wetting agents and disbursers which have a high detergency value and buffing action and contribute to finer metal color and finish.

Designed for use with all media types, Newton Compounds are particularly effective with Newton Polishapes and Burnishapes media, specially cast zinc alloy forms of specific size and shape.

For more data circle 29 on Reader Service Card

★ ★ ★

Anti-Drip Reagent Bottle

As a contribution to laboratory safety, E. I. du Pont de Nemours & Co., Inc., Wilmington, Delaware, has announced five-pint acid bottles fitted with sleeves of "Alathon" polyethylene resin which eliminate drip during pouring. Polyethylene's resistance to wetting prevents acid from dripping down the outside of the bottle, thus eliminating a problem which has long been a nuisance and source of acid burns to the laboratory chemist and worker. Polyethylene fitments, first used by a nationally known distillery for wine bottles, are now employed by the Grasselli Chemicals Department of the du Pont Company for all five-pint containers of C. P. Reagent chemicals.

Reagent Bottle is fitted with polyethylene sleeve to prevent dripping after pouring.

For more data circle 30 on Reader Service Card

MORSE
VERTICAL DRUM TRUCK

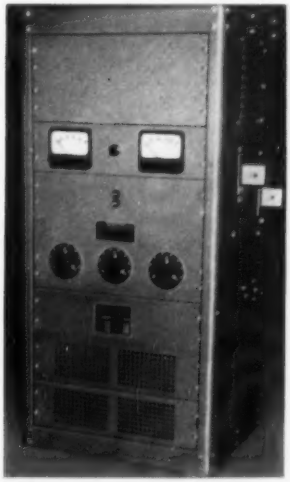
Picks up 55 gal. drums, rolls them over for side draining. Becomes a rugged stand on 3" wheels.

MORSE MFG. CO., INC. 762 W. Manlius St. East Syracuse, N.Y.

For more data circle 187 on Reader Service Card

Germanium Rectifier

The Walker Division of Norma-Hoffmann Bearings Corporation,



Germanium Rectifier helps conserve space.

Stamford, Connecticut, has announced a germanium rectifier. Several models are available in various amperages, d.c. output, to meet most requirements. These germanium rectifiers require fewer components, are smaller in size, and can be installed in a smaller floor area.

For more data circle **31** on Reader Service Card

★ ★ ★

Standard Solutions

The Chicago Apparatus Co., 1735 N. Ashland Ave., Chicago 22, Ill., has introduced Stansols, ready-mixed standard solutions for use as reference solutions in checking chemical formulas.

These solutions bear the manufacturer's guarantee for accuracy within one part in 1000, and are standardized five times before packaging. According to the manufacturer, the claims for accuracy are based on two factors: first, the same burette is used for standardizing the stock solution and dispensing the solution into the ampules; and secondly, a burette of 100 ml volume with a graduate stem reading to 0.05 ml is used.

For more data circle **32** on Reader Service Card

★ ★ ★

Inspection Device

The H&G Spectifier, not marketed for several years, is again in production, according to an announcement made by the Eastern Machine Screw Corporation, Truman and Barclay Sts., New Haven, Conn. This instrument provides manufacturers of screw machine products and similar small parts a practical method of rapidly inspecting individual workpieces. The Spectifier is equipped with a magnifying lens,

Illuminated Magnifying Device for rapidly inspecting small parts.

which does not require focusing, and a 25-watt lamp furnishing a uniform illumination, which reduces eye strain.

For more data circle **33** on Reader Service Card

News of the Industry

New plants . . . company news . . . new positions . . . honors . . . meetings . . . news of societies.

NEW PLANTS

The addition of a large organic fluorine chemicals plant at Calvert City, Ky., will inaugurate the **Pennsylvania Salt Manufacturing Company's** projected expansion program, president William P. Drake has announced.

★ ★ ★

A 10,000 square foot addition to the manufacturing facilities of **Bacon Felt Company** has been opened at the Taunton, Massachusetts, plant.

The new section houses additional felt making and carding equipment that will make possible a 20 per cent increase in the production of felt wheels, bobs, and sheet felt.

Construction of a plant to provide sodium hypophosphite, which is required in the "Kanigen" process for nickel plating of iron, steel, brass, bronze, and aluminum, has been announced by **Victor Chemical Works,** producer of phosphorus, phosphates and other industrial chemicals.

★ ★ ★

The opening of a new **Coating Division** of **Michigan Chrome and Chemical Company** has been announced by Robert J. Huber, president of the company. The plant is located at 275 Iron St., Detroit 7, Michigan.

Frank Jones has been appointed manager of the Coating Division. Mr. Jones, formerly assistant sales man-

Arrow points to new plant section of Bacon Felt Co.

Frank Jones

Robert J. Huber

ager of the Chemical Division, will supervise all activities of the new Coating Division.

Facilities of the Coating Division for the application of Miccrosol (vinyl plastisol) to such items as tanks and hoods are extensive. A large new convection oven can handle the largest industrial equipment, and smaller ovens are available for additional production. Smaller parts, such as baskets and automotive accessories are processed in a tunnel-type oven on conveyors.

Various types of coatings are applied, but primarily plastisols which are especially adapted to meet industrial needs. Chemical corrosion resistance, abrasion resistance, resilience, and toughness are characteristic qualities of these plastisol coatings.

Materials handling equipment is coated to protect finished parts. Plating racks for the electroplating industry are insulated with Miccrosol. Tanks for holding corrosive acids and caustics, and ducts and hoods for fume exhaust systems are coated to prevent chemical attack.

The Coating Division of Michigan Chrome and Chemical Company has the largest dip tank in the country for this type of application. The plant is also equipped for spraying, a new development in the application of Miccrosol coatings.

Chemical Products Corporation of East Providence, R. I., has broken ground for a multi-storied addition.

William I. McGowan, president, stated that the new building is part of the company's long-range development plans.

COMPANIES

Henry M. Margolis

Schmieg Industries, Inc., Detroit, was founded in 1933 to design, manufacture and install equipment and systems for the removal of dust and fumes, as well as industrial ovens, spray booths, mechanical washers and finishing systems. The firm's products are used by automotive manufacturers and foundries, in the chemical, electric, steel appliance and metal working industries.

Schmieg Industries, Inc., was founded by John D. and Frank A. Schmieg. The company is now run by a group of executives headed by **Henry M. Margolis,** president.

Henry S. Brightman, executive vice president, and **Leo Strauss,** director and treasurer, are among the leading executives of the company, which also include **George C. Tilley,** secretary, and **Jerome Theiring,** sales manager; **Guy Irwin,** in charge of manufacturing, and **Frederick R. Porter,** chief of engineering.

Schmieg Industries is housed in a newly-constructed plant in Detroit. A one-story brick and block building, the plant provides about 50,000 square feet of floor space.

Registering a sales increase of 200 per cent in its sales volume during the past four years, Schmieg Industries is at work to improve and develop new equipment, and to expand its sales.

The name of the **Tumbling Sales and Service Co.**, 18 Beech St., Byram, Conn., has been changed to **"The Esbec Barrel Finishing Corporation."** No change of ownership or location of plant is involved, and the new corporation will continue all activities and policies of the Tumbling Sales & Service Co. The Esbec Tumbling Division, in Meriden, Conn., will continue to operate under the same name, as a division of the corporation. **Morris S. Shipley** is president and treasurer and **William A. Biebel** is vice president and secretary of the corporation.

★ ★ ★

The Dow Chemical Company has announced that the New Orleans office has been elevated to full sales office rank and **Robert J. Minbiole** has been appointed manager.

★ ★ ★

The growing importance of precious metal plated ornaments on consumer products and the application of precious metal industrial finishes was stressed at the Industrial Finishing Exposition in Cleveland, by **Sel-Rex Precious Metals, Inc.**, Belleville, N. J. Items displayed were applications of Sel-Rex Bright Gold, Bright Rhodium, or Silverex. Items of equipment shown at the booth, shared by **Bart-Messing Corporation** and Sel-Rex Precious Metals, Inc., included Double Duty Filters, a Jet Plater, a centrifugal pump, and a germanium rectifier.

Equipment and materials manufactured by Bart-Messing Corporation and Sel-Rex Precious Metals were displayed at the Industrial Finishing Exposition.

★ ★ ★

The name of **Consolidated Engineering Corporation** has been changed to **Consolidated Electrodynamics Corporation.**

Consolidated Vacuum Corporation, the Rochester, New York, high-vacuum subsidiary of Consolidated Electrodynamics, has also been dissolved and its activities combined with those of the parent firm. It will be known as the **Consolidated Vacuum Division.**

Philip S. Fogg, president of the Pasadena firm, has announced that no change in the policies, management, or personnel of the high-vacuum equipment operation will occur as a result of the merger. Frank M. Jenner, Jr., will continue in charge of the Rochester, New York, operation as general manager, Con-Vac Division.

★ ★ ★

Alfred W. Payson, founder and president of the **Michigan Buff Co.**, Detroit, Mich., has announced the firm's silver anniversary.

The corporation distributes and handles buffing and polishing wheels and abrasive belts, as well as many other items used in the metal finishing industry.

★ ★ ★

An open house, commemorating the tenth anniversary of **The Chemical Coatings Corporation**, has been held at the plant in Rocky Hill, Connecticut. Several hundred guests attended. Products employing the custom-formulated organic finishes produced by the corporation were displayed.

Guests were guided through the enlarged laboratory and plant, and shown the latest developments in the field of organic finishes and invited to inspect application of these specialized finishes to many different products.

EFFICIENT . . FLEXIBLE . . COMPACT

Murray-Way's New #55 Head

GIVES YOU THESE POLISHING AND BUFFING ADVANTAGES:

GUARANTEED SPINDLES–Factory-tested spindles incorporate heavy-duty, anti-friction bearings that require no grease or oil and are sealed against dirt. GUARANTEED FOR 3 YEARS.

RIGHT OR LEFT HAND OPERATION–Simply invert the head assembly.

SMALL FLOOR SPACE–Heads will install in line on 5'8" centers–economize on floor space, conveyors and fixtures.

UNIVERSAL POSITIONING–By means of simple, accessible adjustment controls at the front of the head.

RUGGED–Heavy-duty workhorses–30 H.P. capacity.

FULL WORK CONTACT–Constant contact on irregular work shapes means–NO EXTRA PASSES–LOWER OPERATING COST–MORE PRODUCTION.

Production men who want a BETTER WAY . . . SPECIFY MURRAY-WAY

FOR COMPLETE INFORMATION WRITE

MURRAY WAY

MURRAY-WAY CORPORATION

P. O. BOX 180, MAPLE ROAD EAST · BIRMINGHAM, MICH.

Polishing, Buffing, Grinding, Filtering Equipment that automatically cuts your costs.

For more data circle 189 on Reader Service Card

Observing more than a century of business activity in the West and the completion of a multi-million dollar, 10-year expansion program, the board of directors of **W. P. Fuller & Company** have held a commemorative meeting in Sacramento, birthplace of the Fuller enterprises.

More than 10 million dollars have been invested during the past decade by W. P. Fuller & Company on equipment and new facilities.

Investments in technical research have resulted in developments of new paint, glass and building products.

New paint factories were built at South San Francisco and in Seattle. Major improvements and additions were made in factories in Los Angeles and Portland.

★ ★ ★

Members of the **Ohio Council of the Painting and Decorating Contractors of America** during a recent visit to **The DeVilbiss Company,** Toledo, Ohio, were given a preview showing of the company's portable paint heater which is expected to be marketed soon. The heater is designed to reduce the viscosity of materials to be spray applied. This assures a greater deposit of solids on the surface being finished, thus providing greater hiding with a substantial film build and reducing the number of coats to be applied.

During the National Metal Congress and Exposition held October 17 through 21, in Philadelphia's Convention Hall, **The International Nickel Company** displayed among its other products, platinum metals (platinum, palladium, rhodium, ruthenium and iridium) which are recovered during refining of copper and nickel, the company's primary products.

International Nickel produces these metals in the form of high purity sponge and, while many tons of ore are processed to recover a single ounce of platinum metals concentrate, the company's extensive operations have made Canada one of the most important factors in the world production of these rare and precious metals.

Through the cooperation of a large number of manufacturers, more than 100 applications of the platinum metals are included in Inco's display.

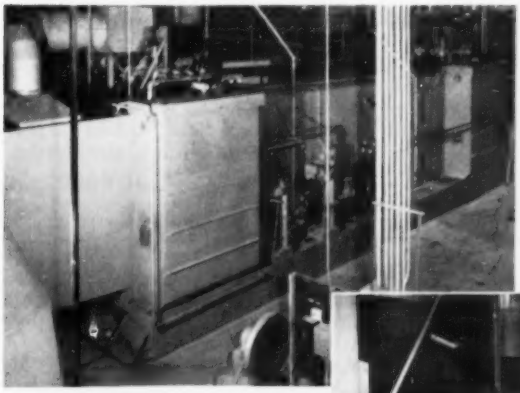
★ ★ ★

Hooker Electrochemical Co. and **Pennsylvania Salt Manufacturing Co.** of Washington have formed a jointly-owned subsidiary, Chemical Salt Production Company, at Great Salt Lake, Utah, which will provide a new unlimited inland source of industrial salt. The two companies are now jointly disclosing details of the facility, con-

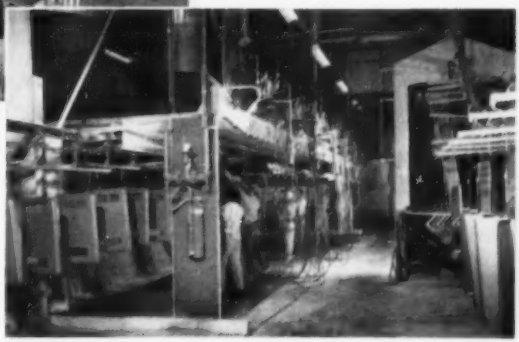
D. V. Perry, left, explains the principle of the paint heater and its place in maintenance painting to members of the Ohio Council of Painting and Decorating Contractors of America.

From Uncleaned Metal to Smart Baked Finish in 50 Min.

Double tunnel complete conveyorized cleaning, phosphate coating and finishing system handles varied size and shape metal parts for leading West Coast producer of electrical appliances.



Unit pictured left washes, rinses, dries and phosphatizes two conveyed lines of metal parts. Work is then oven dried before paint application.



Work requiring spray finish is conveyed through booths shown at left of photo at right. Work requiring flocoat travels through unit at right. Both lines converge as work travels through a 450 degree final bake oven.

This and thousands of other engineered-for-the-job installations prove that leaders of America's metal working industry find it pays to call upon

RANSOHOFF INGENUITY

for speeding up and cutting costs of metal cleaning and finishing — with better methods and automatic equipment.

Write for full details as to how you can put America's most experienced and ingenious metal surface treatment specialists on your production improvement team. Representatives in all principal metal working centers.

RANSOHOFF, INC.

610 NORTH FIFTH STREET **HAMILTON, OHIO**

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struction of which was begun in late September, with completion scheduled by April 1, 1956.

★ ★ ★

The Carborundum Company will spend 1½ million dollars to modernize and expand the "Monofrax" Refractories plant in Falconer, New York, according to an announcement by General Clinton F. Robinson, president of the company.

★ ★ ★

Pittsburgh Plate Glass Company is offering for the fourth straight year its 4,000 dollar science and engineering scholarship to an outstanding high school male senior at Mount Vernon, Ohio, Richard B. Tucker, vice-president of the firm has announced.

★ ★ ★

An article on **The Buckeye Products Company** is contained in the October issue of the Mexican magazine, "Manana." This publication, styled on the lines of Fortune, dedicated this particular issue to the City of Cincinnati, and gave prominence to the role played in the Queen City by The Buckeye Products Company. A detailed description of the various products for the foundry and metal finishing industries as manufactured by the company is given as well as a history and vital functions performed by **Arthur Hoffheimer,** president, and **Charles Wise,** secretary.

★ ★ ★

Lea Manufacturing Company is justly proud of the recovery made from the recent flood that struck with such devastation and property loss in the wake of a hurricane. One of the Lea plants in Waterbury, Conn., had eight feet of water within the building during the height of the flood. Naturally, after the waters receded, plant manufacturing areas were covered with tons of ruined raw materials and finished products, damaged machinery, mud and silt. Fortunately the plant building itself was not damaged.

In just five days, the Lea organization had cleaned and repaired the plant and its machinery, and was back in production of Learok and Liquabrade compounds made from raw materials taken from another Lea plant. In only 12 days, the backlog of orders pending during the cleanup were filled.

Lea, like the other courageous manufacturers of the Naugatuck Valley, does not plan to leave that area; instead, steps are being taken to prevent recurrence of such a disaster.

NEW POSITIONS

George J. Madill has been appointed sales manager of **Allied Porcenell, Inc.,** Waukegan, Illinois, sales representatives for Porcenell and Vitcote, industrial protective-decorative coatings, developed by Youngstown Sheet & Tube Co. and Poor & Company, Chicago, Illinois.

Also announced was the appointment of **Howard C. Wolf** to represent Porcenell products in Ohio and Indiana under the name **Midland Porcenell Sales, Inc.**

In addition to the Midwest firm, Allied Porcenell, Inc., is now represented by R. B. Kraft Co., Chicago, Ill., in Illinois and Wisconsin and by Eastern Porcenell Associates in all of the East Coast States.

G. J. Madill

H. C. Wolf

PACKER MACHINE INTRODUCES

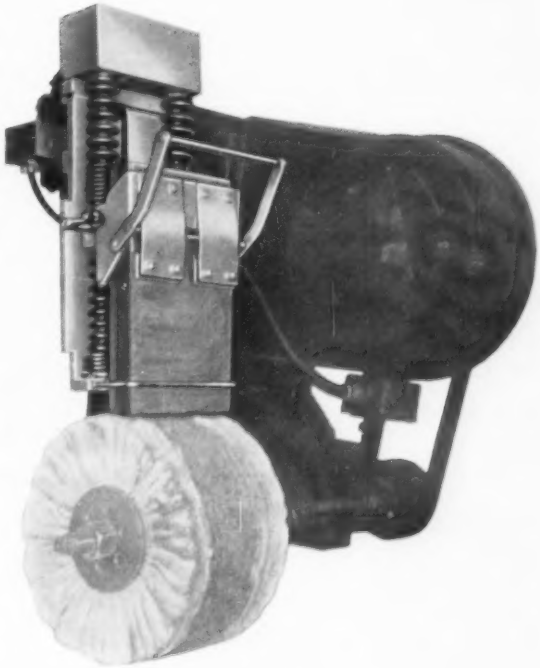
NEW COMPOUND APPLICATOR

That Will Improve Your Present Equipment

Now PACKER MACHINE CO., offers users of Automatic, Semi-Automatic and Hand Jack Equipment, an all new, completely enclosed, automatic compound applicator that will increase your operators' buffing output per hour and cut bar compound waste to a minimum.

As pioneer builders of *Automatic* Polishing and Buffing Machinery, Packer combined years of experience and engineering "know-how" to perfect this new automatic applicator.

It is designed to hold any length bar compound and rouge 2" thick, and will feed 10" of compound to a buffing wheel in one setting



ADAPTABLE TO AUTOMATIC, SEMI-AUTOMATIC AND HAND JACK EQUIPMENT

Power is provided by a 1/20 H.P. motorized reducer drive —115 volts, single phase; 220 volt unit optional.

For further details on the Model No. 60 Applicator, phone, wire, or write Mr. E. C. Ness.

PACKER-MATIC

AUTOMATIC MACHINES FOR BUFFING • POLISHING • DEBURRING

THE PACKER MACHINE CO.

MERIDEN, CONNECTICUT

For more data circle 191 on Reader Service Card

Robert A. Emmett, Jr.

Robert A. Emmett, Jr., has been elected vice president of the **Detrex Corporation,** Detroit.

A. O. Thalacker, president, states that Mr. Emmett will continue in charge of the industrial equipment division at the Woodrow Wilson plant as well as dry-cleaning production at the new Detrex plant in Bowling Green, Kentucky.

★ ★ ★

James B. Day & Co., Chicago lacquer and enamel manufacturer, has announced the appointment of **William G. Pittman** to the position of merchandising manager.

Mr. Pittman has been associated with paint manufacturing and distributing in the Chicago area for 22 years.

★ ★ ★

Richard C. Morgan

Richard C. Morgan has been appointed factory sales engineer for the **Dry Clime Lamp Corporation,** Greensburg, Indiana, M. N. Kanouse, president of Dry Clime, has announced. Mr. Morgan will serve in the New York City and northern New Jersey area.

Mr. Morgan recently completed an intensive training course at the Dry Clime factory and in the field. He is fully equipped to take into the prospective customer's plant, for test purposes, Dry Quik interlocking infra-red oven sections.

MacDermid, Inc., of Waterbury, Conn., has announced the appointment of two additional sales representatives.

Robert J. Yackley, a 1950 chemical graduate of De Paul University, will work with E. F. Stack, Chicago manager, in the Northern Illinois, Wisconsin, Iowa, and Minnesota territories.

Frank C. Hartwig will be located in the Indiana territory with headquarters in Indianapolis. Mr. Hartwig had previous metal finishing experience in the hot-dip galvanizing and pickling department of U. S. Steel Corp., and most recently was employed by Pro-

Robert J. Yackley

Frank C. Hartwig

mat Div. of Poor & Co. in the electroplating and research department and as a technical sales and service engineer. He is a member of the Indianapolis Branch, A.E.S. and secretary for the Tri-State Region, A.E.S.

★ ★ ★

Appointment of **C. C. March** as general manager of the coated abrasives and related products division and **R. W. Mueller** as general manager of the fibrous and industrial tape division has been announced by **Minnesota Mining & Manufacturing Company.**

As general managers, Mr. March and Mr. Mueller will be responsible for all operations within their respective divisions including research, manufacturing and sales.

Who Uses Airless Spray Painting Systems?

CUT PAINT LOSSES

INCREASE PER GALLON COVERAGE

SAVE ON SOLVENTS

REDUCE HEALTH HAZARDS

MAINTAIN UNIFORM VISCOSITY

DESIGNED TO FIT YOUR NEEDS

OLIVER CORPORATION, Cleveland, Ohio

WHY?

Most manufacturers of heavy equipment have finishing problems . . . and many of these manufacturers have solved their problem with Bede Airless Spray Painting Systems.

Notice the absence of special hoods, curtains, etc. They spray it on the spot.

There are considerable savings waiting for you if you'll ask us in to demonstrate this revolutionary new painting system.

WRITE FOR CATALOG ON REVOLUTIONARY NEW AIRLESS SPRAY PAINTING PROCESS . . . *IT'S NEW*

BEDE PRODUCTS CORPORATION

HOT SPRAY AND AIRLESS INDUSTRIAL FINISHING EQUIPMENT

JACKSON ST. AMHERST 44-711 AMHERST, OHIO

DEPT. 1

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MEETINGS

The National Association of Metal Finishers, recently reorganized to represent job-shop finishing companies from coast to coast, has announced sponsorship of a **Management Seminar** in Chicago. The Seminar will be held at the Conrad Hilton Hotel on Friday and Saturday, January 27 and 28, in conjunction with the Annual Educational Sessions of the Chicago Branch, A.E.S.

The program will include talks on topics of interest to the management of job shops and finishing departments and a banquet on Friday evening, with sessions both on Friday afternoon and on Saturday. Featured in the program will be two conference sessions during which attendees will have the opportunity to discuss their individual plant problems with a variety of guest experts from all phases of management.

Association President John Palik, Jr., National Plating Corp., Cleveland, Ohio, has announced that a charge of ten dollars per person will include the cost of the banquet and the entire program. Invitations to the event will be sent to owners and operators of job-shop finishing firms throughout the country and to managers of finishing departments of manufacturing firms. Attendance is limited to these groups.

HONORS

Edgar W. Fasig receives George B. Heckel Award

The highest individual award in the paint industry has been presented to **Edgar W. Fasig,** general superintendent of **The Lowe Brothers Company,** at the annual convention of Federation of Paint and Varnish Production Clubs, held recently at the Statler Hotel in New York City.

The award is known as the George B. Heckel Award and has been given annually since 1951 to the individual who, in the opinion of the selection committee, has made extraordinary contributions to the industry in technology and production.

★ ★ ★

These Wyandotte Chemicals J. B. Ford Division sales representatives have earned 25-year service watches: (Left to right) Harry A. Conroy, resident salesman in Kalamazoo, Michigan; Roy M. Barnes, resident salesman in Utica, New York, and Emil Haas, a New York City district salesman. Congratulating the new watch wearers were back row, left, Fred Tholen, sales manager who received his 25-year watch last year and Ford Ballantyne, Jr., a Wyandotte Chemicals vice-president and general manager of the J. B. Ford Division.

SOCIETIES

Fifteen members of the **Federation of Paint and Varnish Production Clubs** have been elected to the Federation Board of Directors at the 33rd Annual Meeting in New York on October 5.

Topping the list are the officers for 1955-56: President **Clyde L. Smith,** of Vi-Cly Industries, Inc. (Los Angeles Club); President-Elect **Milton A. Glaser,** of Midland Industrial Finishes (Chicago Club); and Treasurer **Howard G. Sholl,** of C. M. Athey Paint Co. (Baltimore Club).

Others who will serve on the governing body of the Federation are:

One-Year Term—Eugene H. Ott, of Ferbert-Schorndorfer Co. (Cleveland Club); John E. Hoffmeyer, of The Sherwin-Williams Co. (Dallas Club); Robert F. Hall, of United Co-operatives, Inc. (Cleveland Club); Newell P. Beckwith, of Rinshed-Mason Co. (Detroit Club); and Everitt J. Cole, of Manufacturers Varnish Co., Inc. (New York Club). Messrs. Beckwith and Cole are past-presidents.

Two-Year Term — Raymond C. Adams, of Gilman Paint & Varnish Co. (Southern Club); Herbert E. Hillman, of Eaglo Paint & Varnish Corp. (New York Club); E. G. Carlson, Jr., of Western Paint & Varnish Co. (Northwestern Club); and Amos T. Montanye, of Pratt & Lambert, Inc. (Western New York Club). Mr. Montanye is a past-president.

Three-Year Term—Lyman P. Hunter, of Bennett's (Rocky Mountain Club); Archie Stewart, of Trelco, Ltd. (Toronto Club); and John J. Hughes, Jr., of Mobile Paint Mfg. Co., Inc.

★ ★ ★

Secretary-treasurer Frank Kaiser of the **National Association of Metal Finishers** has announced that membership is growing.

Representatives from every major metal finishing center have been received into the organization.

The association's publication, "Finishing Touches," is being distributed nation-wide to all finishers during the period of membership growth. Names of additional companies who do not now receive the publication will be welcomed. Address correspondence to John Palik, Jr., National Plating Corp., 2790 Grand Ave., Cleveland, Ohio.

MEETINGS of INTEREST to FINISHERS

Dec. 5-6. Year End Conference, Institute of Appliance Manufacturers, Netherland Plaza Hotel, Cincinnati.

Dec. 10-16. International Atomic Exposition, Cleveland Public Auditorium, Cleveland, Ohio.

Dec. 16-17. 42nd Annual Educational Session and Banquet, Newark Branch, A.E.S., Robert Treat Hotel, Newark.

Jan. 27-28. Management Seminar, National Association of Metal Finishers, Conrad Hilton Hotel, Chicago.

Feb. 10-11. Annual Meeting, Educational Session and Banquet, Southeastern Branch, A.E.S., Biltmore Hotel, Atlanta, Ga.

Feb. 29. Symposium on Properties, Tests and Performance of Electrodeposited Metallic Coatings, Committee B-8, American Society for Testing Materials, Hotel Statler, Buffalo, N. Y.

Feb. 29-Mar. 3. Annual Meeting, Southern Paint and Varnish Production Club, Atlanta Biltmore Hotel, Atlanta, Ga.

Mar. 10. Tri-State Regional Meeting, American Electroplaters' Society, Biltmore Hotel, Dayton, Ohio.

Mar. 12-16. Twelfth Annual Conference, National Association of Corrosion Engineers, Hotel Statler, New York, N. Y.

Apr. 7. New England Regional Meeting, A.E.S., Hotel Statler, Hartford, Conn.

Apr. 14. Empire State Regional Meeting, A.E.S., Statler Hotel, Buffalo.

Apr. 28. Annual Meeting and Dinner Dance, Indianapolis Branch, A.E.S., Indianapolis Athletic Club, Indianapolis, Ind.

June 17-21. 43rd Annual Convention, A.E.S., Hotel Statler, Washington, D. C.

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Consultants and specialists in corrosion, weathering and sunlight testing.

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Experienced man, preferably with application background in metal and corrosion resistant products, required by manufacturer of Industrial Coatings located in Brooklyn, for Laboratory and Sales Service work in the greater New York area. Our personnel know of this advertisement. Write giving full details, salary desired, also indicate whether or not you are interested in working into a sales position. This represents a fine opportunity for the right man. Box No. 122, c/o Products Finishing, 431 Main St., Cincinnati 2, Ohio.

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We need experienced, successful technical sales representative with proven sales record for expanding sales program. Must know plating, phosphating, porcelain enameling, other finishing. Liberal draw, commissions, expenses, car, other benefits. Write age, experience, income requirements, territory preference.

COWLES CHEMICAL COMPANY
Metal Cleaner Department
7012 Euclid Avenue, Cleveland 3, Ohio

PRODUCT LITERATURE

55. Germanium Rectifiers

Technical information on germanium rectifiers is contained in a bulletin which is available from the Rapid Electric Co., 2877 Middletown Rd., New York 61, N. Y.

56. Aluminum Etchant

Information on Aluminix, an alkaline etching compound for all aluminum alloys is contained in Bulletin No. 51A, which may be obtained from The Diversey Corp., 1820 Roscoe St., Chicago 13, Ill. This material is said to materially reduce scale formation in processing tanks.

57. Tumbling Chips

A complete range of sizes of aluminum oxide tumbling chips is illustrated in literature available from the Lord Chemical Corp., 2068 S. Queen St., York, Pa.

58. Fast Drying Silk Screen Colors

Information on the 5500 Series Fast Dry Process Ink and other paints, varnishes and lacquers is given in a catalog available from the Naz-Dar Co., 461 Milwaukee Ave., Chicago 10, Ill.

59. Cleaning Methods

Bulletin 10,000G, available from the Equipment Div., Magnus Chemical Co., Inc., 208 South Ave., Garwood, N. J., is entitled "How to Select the Proper Method, Machine and Material." Information is given on such subjects as "How to Analyze Your Cleaning Problems," "Selection of Chemicals," selection of method and equipment, and features of various Magnus cleaning machines.

60. Olive Green Finish

Properties of films formed by the K. E. R. Chro-Mite GC process are described in literature available from Kosmos Electro-Finishing Research, Inc., 13 Valley St., Belleville 9, N. J. The process may be used to impart an olive green finish to zinc plate, zinc die castings, hot dip galvanized iron, and cadmium plate.

61. Bright Nickel Process

Data on the Nubrite Bright Nickel Process is available in a folder being offered by the Harshaw Chemical Co., Cleveland 6, Ohio.

62. Solution Filters

A folder being distributed by the Industrial Filter & Pump Mfg. Co., 5904 Ogden Ave., Chicago 50, Ill., shows how Industrial Horizontal Pressure Filters can increase filtering efficiency and simplify operations.

63. Electropolishing Concentrates

Information on Electro-Glo electropolishing concentrates formulated for a variety of applications is given in a pamphlet being offered by Electro-Glo Co., 1430 S. Talman Ave., Chicago 8, Ill.

64. Thermo-Panel Heat Exchangers

A data sheet available from the Thermo-Panel Div., Dean Products, Inc., 616 Franklin Ave., Brooklyn 38, N. Y., gives information and specifications on various sizes, shapes, and types of immersion heaters constructed of two embossed sheets welded together to form a heat exchanger.

65. Buffing and Polishing Compounds

A complete description of buffing and polishing compounds, application information for each, and a table showing which to use for various metals are included in a booklet available from the Hanson-Van Winkle-Munning Co., Matawan, N. J.

66. Automated Ultrasonic Cleaning

A description of a huge automatic ultrasonic cleaning machine is contained in a reprint which may be obtained from Circo Equipment Co., 128 Central Ave., Clark (Rahway), N. J.

67. Zero-Mist

The facts about "Zero-Mist" tablets, which reduce mist and spray from chromium plating baths, are contained in a data sheet which may be obtained from the Udylite Corp., Detroit 11, Mich.

68. Aluminum Bright Dip

A technical data sheet on Heatbath Aluminum Brite Dip, a combination of acids and catalysts for chemically polishing aluminum and its alloys, is available from the Heatbath Corp., Box 78, Springfield, Mass.

69. Barrel Finishing Supplies

The Gravi-I-Flo line of barrel finishing equipment and supplies, including barrel tumbling machinery, chip separators, compounds, cutting chips, and dip tanks is presented in a brochure available from The Gravi-I-Flo Corp., Dept. PF, Sturgis, Mich

70. Rectifiers

Rectifiers incorporating "Dual-O-Matic" transformer circuits are described in literature available from the Clinton Supply Co., Rectifier Manufacturing Div., 110-112 S. Clinton St., Chicago 6, Ill. This type of transformer circuit permits the maximum name plate amperage to be drawn on either the 2 or 12 volt operating range without reconnecting external d.c. connections.

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71. Vapor Degreasing Information

A bulletin available from the Dow Chemical Co., Midland, Michigan, contains helpful information concerning vapor degreasing, including basic principles, types of degreasing units, suggestions for proper operation and maintenance of equipment, and technical data on chlorinated degreasing solvents.

72. Organic Finish Base

Metabond "23" is described in a folder obtainable from the International Rustproof Corp., 12507 Plover Ave., Cleveland 7, Ohio. Advantages in corrosion resistance produced, elimination of sludge and greater adhesion and flexibility of the coating are pointed out in this literature.

73. Wood Grain Printing

Details on wood grain printing and roller coating machines are furnished in a leaflet available from the Kent Rotary Equipment Co., 1821 Edgecliffe Drive, Los Angeles 26, Calif.

74. Bright Nickel

Advantages of the McGean Bright Nickel Process are described in literature available from the McGean Chemical Co., Cleveland 15, Ohio.

75. Better Racking Methods

Tips for racking articles to be anodized or plated are contained in a bulletin entitled "Take a Tip from Naraco," available from the National Rack Co., Inc., 179-181 Madison St., Paterson, N. J.

76. Graphite Heat Exchangers

Information on impervious graphite heat exchangers is available from the National Carbon Co., a division of Union Carbide and Carbon Corp., 30 E. 42nd St., New York 17, N. Y. These heat exchangers are resistant to most corrosive fluids and thermal shock, and have high heat transfer rates.

77. Chromate Treatments

Bulletin 4-1, available from the Promat Div., Poor & Co., 851 S. Market St., Waukegan, Ill., contains technical data on chromate treatments for zinc and cadmium electrodeposits, and for alloys of aluminum, zinc, and copper.

78. Plating Power Supplies

A brochure available from General Electric Co., Section 463-12E, Schenectady 5, N. Y., includes general information on a variety of metal finishing operations, among them electroplating, pickling, electropolishing, electroforming and anodizing, in relation to the use of electric power and sources for this power. The information is complete and comprehensive, and includes specifications for many different types of rectifiers.

79. Vapor Spray Degreasers

A data sheet available from Baron Industries, 241 W. Avenue 26, Los Angeles 31, Calif., gives specifications of Baronet gas, steam and electrically heated vapor spray degreasers. Outstanding features, such as automatic reclamation of dirty solvent, are discussed.

80. Paint Rejuvenators

The Miracle Paint Rejuvenator Co., 127 E. 9th St., St. Paul 1, Minn., has available a catalog which shows a variety of equipment for thoroughly agitating paint without removing it from the container. Models available are designed for mixing small cans as well as drums.

81. Water and Waste Treatment Products

A complete line of products for water and waste treatment is described in a bulletin which may be obtained from the Omega Machine Co., Div. B-I-F Industries, Inc., 345 Harris Ave., Providence 1, Rhode Island.

82. Barrel Finishing Compounds

Four classes of precision barrel finishing compounds are described in a set of brochures prepared by Newton Industries, Inc., 100 Saw Mill Road, West Haven, Connecticut. The compounds described are for a wide range of barrel finishing operations, from heavy deburring and cutting, to regular deburring, burnishing, and cleaning. In addition, rinsing and neutralizing compounds for between-stages operations are described.

83. Electrical Controls

Bulletin 47-200, being offered by The Electric Products Co., 1725 Clarkstone Rd., Cleveland 12, Ohio, gives information on generator controls and automatic processing controls.

84. Dust and Mist Collectors

Two revised catalogs covering the Dustkop line of industrial dust collecting equipment and Mistkop industrial vapor collecting equipment are available from Aget Manufacturing Company, 1390 E. Church St., Adrian, Michigan. Bulletin No. 636-3 offers engineering information on industrial dust control. Bulletin No. 622-3 offers technical information on industrial vapor collectors.

85. Chemical Resistant Pipe and Fittings

Detailed specifications on Van-Cor 2 unplasticized polyvinyl chloride pipe and fittings are contained in a bulletin which is available from the Industrial Division of Colonial Plastics Mfg. Co., 8007 Grand Ave., Cleveland, Ohio. A table shows resistance of this material to a long list of reagents.

86. Finger Buffs

Information on buffs designed for a wide variety of tasks in metal finishing is included in a catalog available from the Geo. R. Churchill Co., Inc., Dept. PF, Hingham, Mass. Among the buffs described are those for metals requiring heavy cutting-down action, those for stainless steel, and types designed for coloring all metals.

87. Direct Current Generators

Advantages of Chandeysson motor generators are detailed in a bulletin obtainable from the Chandeysson Electric Co., 4082 Bingham Ave., St. Louis 16, Mo.

88. Silk Screen Supplies

Catalog No. 55, available from Advance Process Supply Co., Inc., 1442 W. Kinzie St., Chicago 22, Ill., lists a complete line of equipment, materials and processes for silk screen finishing.

89. Deburring and Finishing Equipment

A catalog available from Almco Div., Queen Stove Works, Inc., 811 Marshall St., Albert Lea, Minn., gives detailed information on the company's line of deburring and handling equipment, and materials and compounds used in barrel finishing.

90. Germanium Rectifiers

Standard models of Sel-Rex Germanium Rectifiers, from 500 to 50,000 amperes capacity, in either forced air or completely sealed water cooled design, are illustrated and described in a folder available from Bart-Messing Corporation, 229 Main St., Belleville, New Jersey.

91. Immersion Heaters

Specifications for heaters designed for immersion service in acids and for heaters built for alkaline baths is given in a folder obtainable from the Cleveland Process Co., 1965 E. 57th St., Cleveland 3, Ohio.

92. Power-Tilt Tumbling Barrels

Tumbling Barrel Bulletin C-1, available from the Casalbi Co., West Ganson and Wayne, Jackson, Mich., describes operating features of the Globe tumbling barrel, which incorporates a mechanism for tilting the barrel.

93. Aerosol Paints

A brochure entitled "Aerosols Unlimited" is available from Sprayon Products, Inc., 2075 E. 65th St., Cleveland 3, Ohio. Complete information on the manufacture of aerosol packaged paints is given, along with data on services available to aid manufacturers in packaging products in aerosol containers.

94. Chemical-Proof Equipment

Facts on chemical resistant tanks, linings, ducts, pipe, and heating and cooling units, are found in Bulletin 460, being offered by the Heil Process Equipment Corp., 12901 Elmwood Ave., Cleveland 11, Ohio.

95. Temperature Controls

A wide range of temperature recording and controlling instruments and thermometers are illustrated in a folder which may be obtained from the Scientific Instrument Co., 1041 Second Ave., Detroit 26, Michigan.

96. Thickness Gage

The Elcometer, a pocket-sized thickness gage, is described in a folder which may be obtained from the Ferro Corporation, 4150 E. 56th St., Cleveland 5, Ohio. This instrument can be used to measure thickness of plated, painted, and porcelain enamel films.

97. Metal Finishing Materials

Products which are helpful in cleaning, processing, painting, flaw detection for castings, and plant maintenance are listed in a catalog being distributed by Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif. This booklet also contains several useful tables, including conversion factors, methods of measuring surface area, and properties of saturated steam.

98. Why Hot Spray?

The advantages of the hot spray method of paint application are covered in a booklet entitled, "Why Hot Spray?" which is available from the Spee-Flo Co., 720 Polk Ave., Houston 2, Texas.

99. Polishing Machinery

Catalog No. 44, available from the Standard Electrical Tool Co., Cincinnati 4, Ohio, illustrates and gives specifications for the complete line of polishing, buffing and grinding machines manufactured by the company.

100. Paint Strippers

A handy guide for various types of paint strippers and their applications is available from the Texo Corp., Dana and Floral Aves., Cincinnati 7, Ohio.

101. Degreasing Data

Technical information outlining the advantageous features of perchlorethylene degreasing solvent in metal cleaning is given in Bulletin DG-1, which may be obtained from the Stauffer Chemical Co., 380 Madison Ave., New York 17, N. Y.

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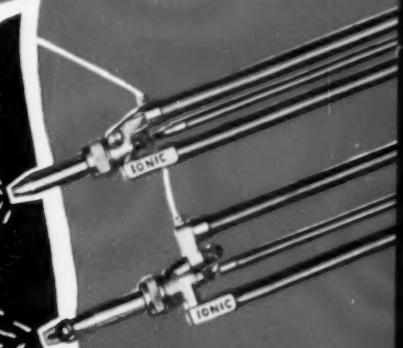

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Solve your finishing problems with our revolutionary patented° "Ionic Guns" featuring the amazing new "Atomic Nozzles."

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- Minimum Paint Consumption
- No Rentals
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"To make a long story short, the Detrex technician surveyed our plant and came up with several cost-cutting suggestions that were pretty important to us. You know, I bet he could do the same thing for you in your plant. You don't even have to take the time to make the survey. I found out he will do it for you and it won't cost you a cent. Most likely you, too, will realize some important savings as a result of the survey. Talk to the Detrex technician about it the next time he calls, or write direct to their main office if you wish."

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